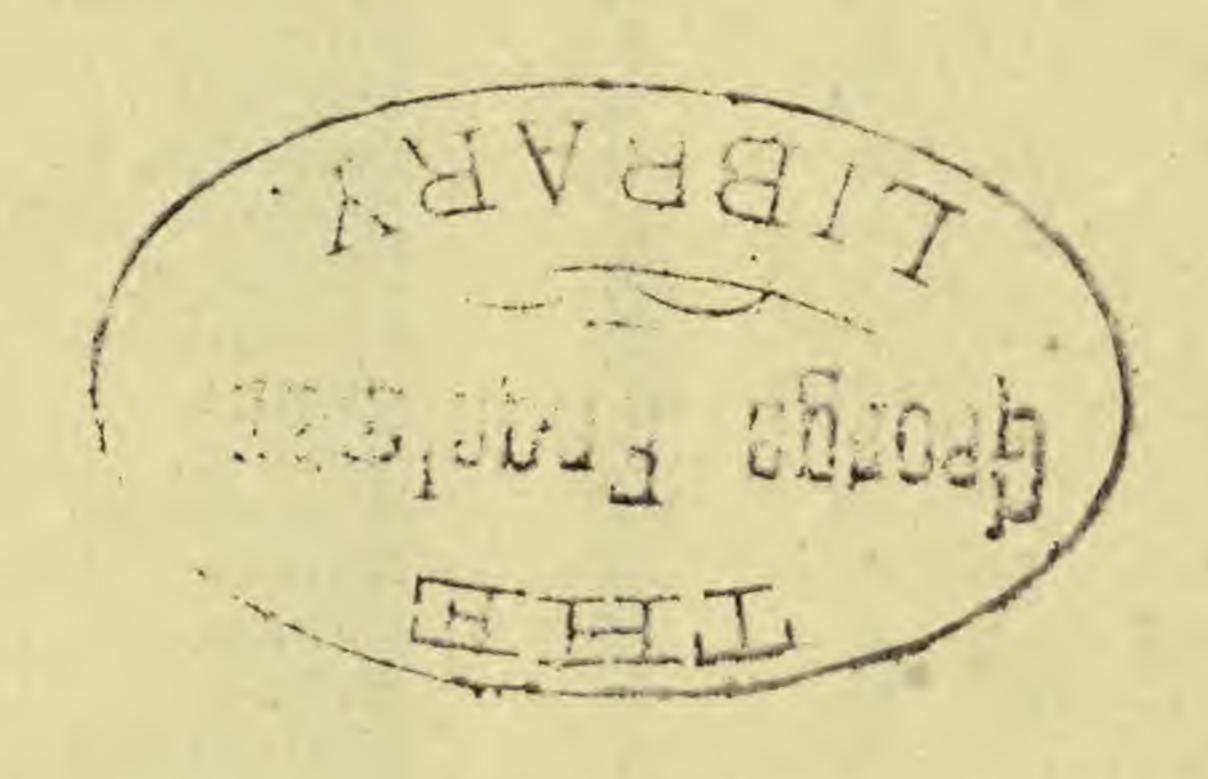
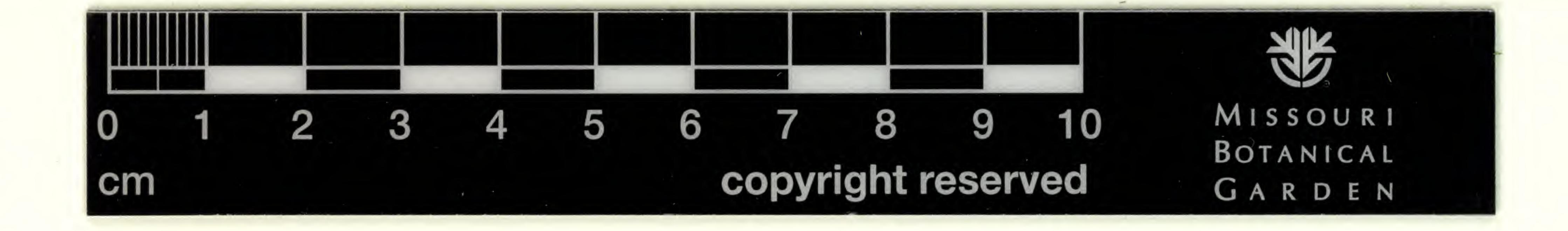


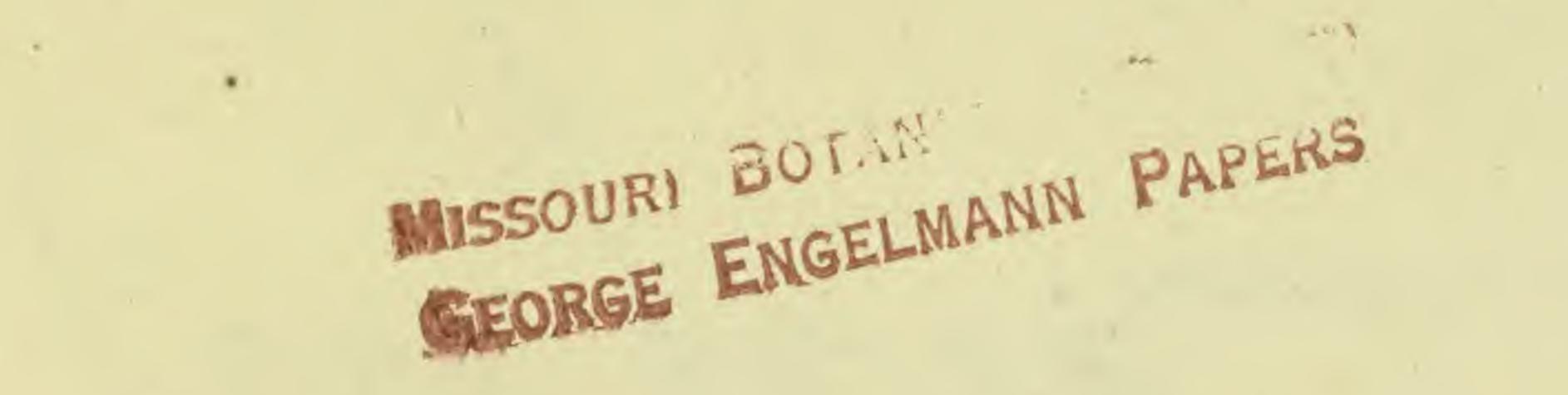
ARTICLES.	Johnson.		Apple-	Appleton.		Johnson.		Apple- ton.	Appleton.
	Lines.	Cols.	Cols.	Times more.	ARTICLES.	Lines.	Cols.	Cols.	Times more.
Silver,		63	20	28	Treason,		28	6	41
	50	03	21	21	Tripoli,		3	4	21
Slander,	3		41	74	Tulip,	12		31	1 1
Slang,	0	4	28	15	Turnip,	23		3	31
Slavery,	8	-	21	13	Turtle,		- 3	5	41
Smilax,	26		21	37	Venezuela,		11	12	41
Snake-root,	20	1	71	38	Verbena,	9		2	10
Socialism,	14	1	3	108	Veterinary Science,		18	10%	28
Society Islands,	14		1	FI	Violet,	11		4	17
Solder,	8		1	17	Violin,	16		71	22
South Australia,	34		41	47	Viper,	20		17	21
Spectacles,	42	10	41	43	Wales,	24		5	(1
Spinal Disease,		18	(1	11	The state of the s	17		3	8
Spruce,	14		3	10	Walnut,	4		47	60
Squash,	8	-	3	172	Water Lily,	-	8	47	28
Squirrel,	55		24	21	Western Empire,		11	5	41
Stocking,	28	'	The state of the s	3 5	Whale,		18	41	28
Stratford-upon-Avon,	4		13	17-3	Whale Fishery,		1	6	F.8
Strawberry,	35		3	84	Wheat,		11	11	11
Sumach,	53		5	E-}	Wheel.	01	14	41	6
Sunflower,	11	1.0	11	5	White Mountains,	21		0	261
Swimming,		34	3	11	Whortleberry,	4	~	3	364
Thebes,	63		44	28	Willow,	16		41	13
Tides,		1	18%	18	Woodpecker,	000	2	3	141
Tin,		21	11	21	Writing.	28		98	161
Toad,	-	2	41	28	Yale College,	1	17	98	2
Tomato,	7		22	17	Yam,	13	0-1	21	0.8
Tortoise,		1	7	3	Yew,	14		3	34
Trades Union,		11	8	2	Zinc,		1	21	11
Transfusion of blood,	13		8 21	71	Zymosis,	14		2	0.8



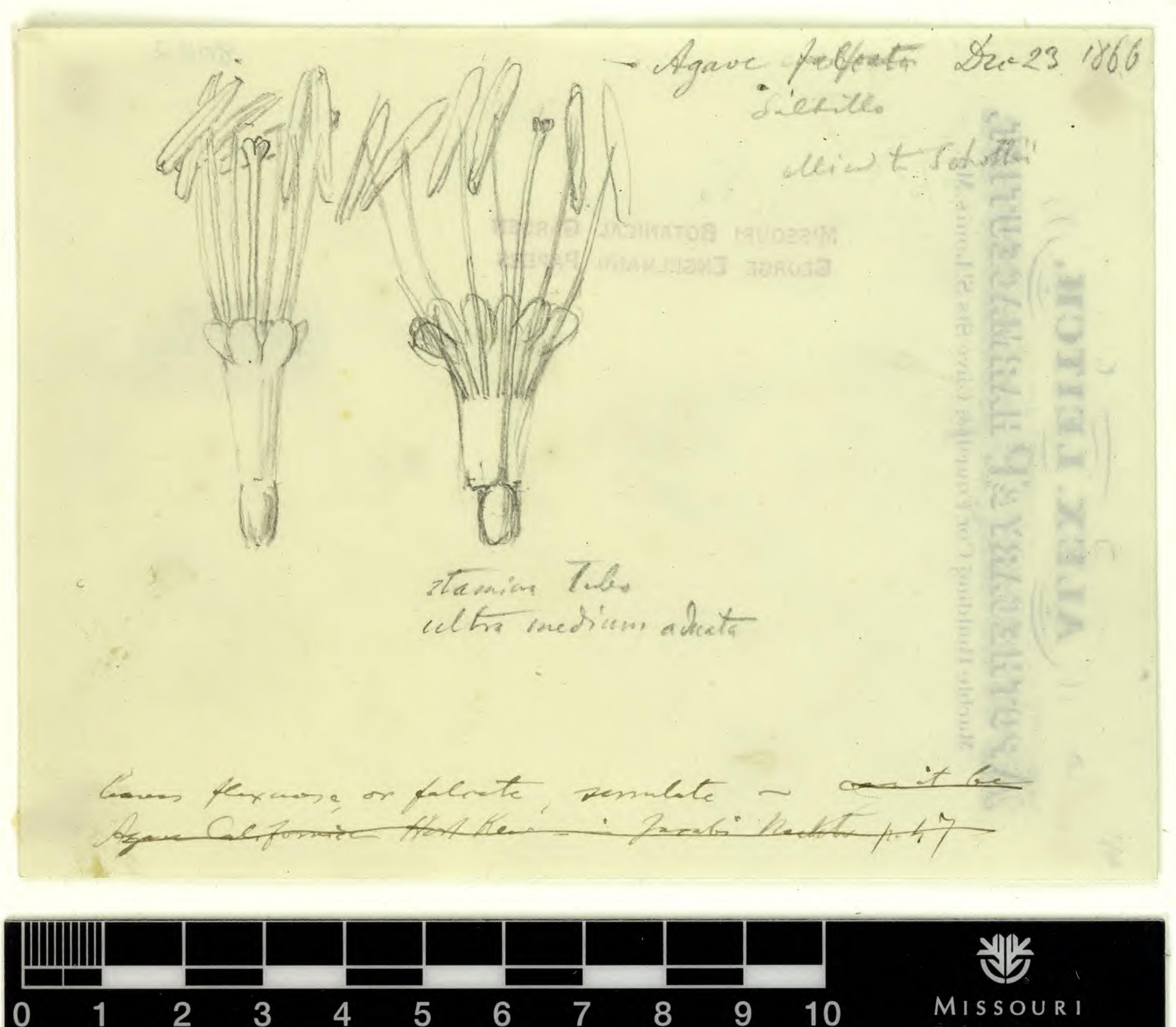
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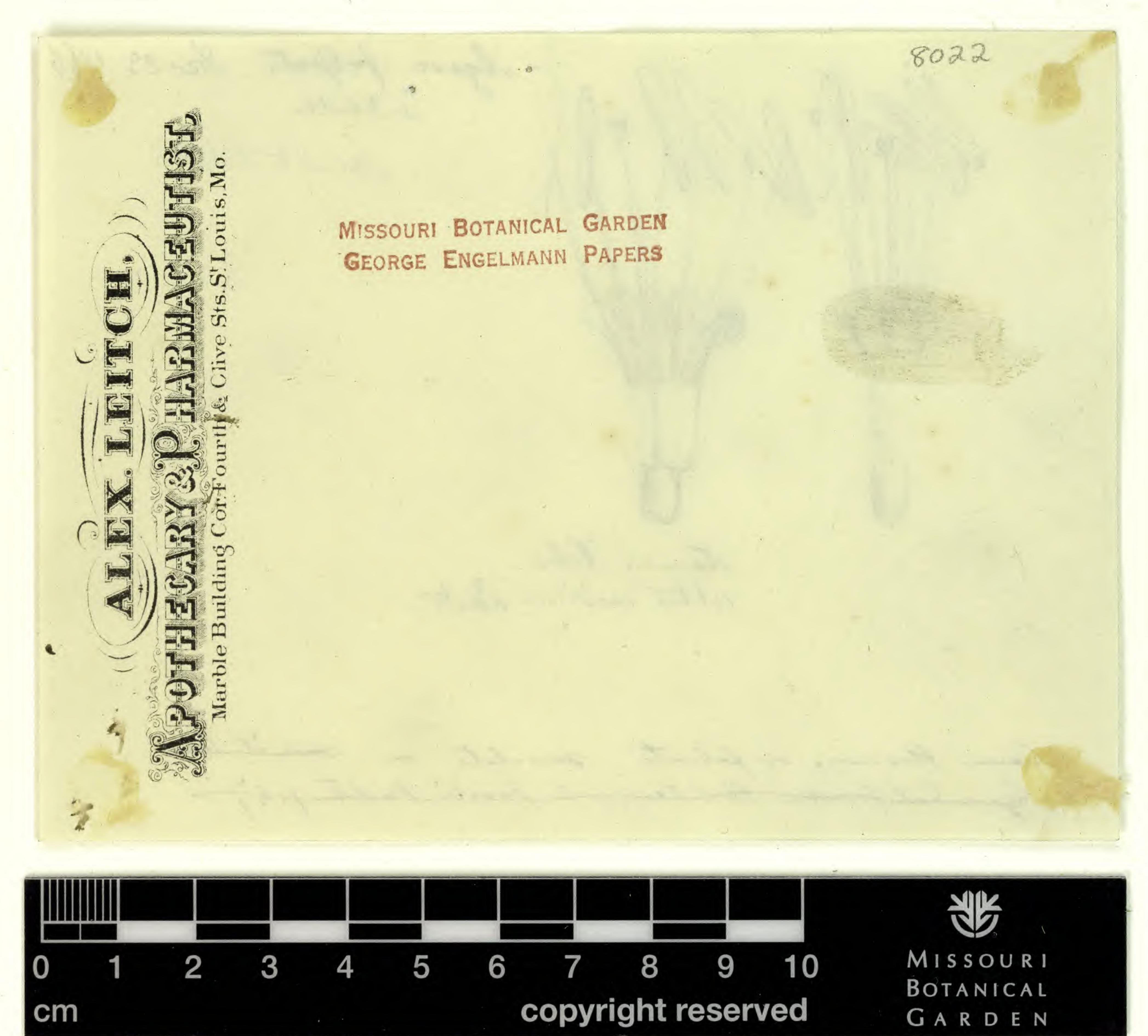
Johnson.		Apple-	Excess in Appleton.		Johnson.		Apple- ton.	Excess in Appleton.	
ARTICLES.	Lines.	Cols.	Cols.	Times	ARTICLES.	Lines.	Cols.	Cols.	Times more.
Nelson, Horatio,	ZJI II C.S.	84	61	more.	Pipe, Pipe-Fish,	11		1½ 2	6 323
Netherlands, Nettle,	21	3	15½ 2	334	Piracy,	5		2	19
Newfoundland,		2	121	21	Pitt, Sir William, Plant and Botany,		1 1C2	43	11
New South Wales, Newton, Sir Isaac,		28	111	3 1 2 1	Pleading,		13	4	84
New Zealand,		1	111	124	Plough, Plover,	9		4	39
Nicaragua, Nile,		1	11½ 13½	124	Plum,	23		81	61
Nineveh,		11	7 10	15	Poker, Poland,	10	21	14	10½ 2¾
Nomenclature, Norway,		2 1 3	113	21/2	Polar Sea,	52	~ 8	C1	88
Nutmeg,	13	1	4\frac{1}{2} 2\frac{1}{2}	161	Police, Policial Economy,	7	21	30	35 41
Ocelot,	11	2	11/2	6	Polygamy,	22	- 8	2	31
O'Connell, Daniel,	28		3	21	Polyglot, Pomegranate,	13		2 2	13½ 68 4
Onion, Opal,	22 19		11/2	5½ 3	Poplar,	26		41	7
Ophthalmia,		1	4 6½	14	Poppy, Porcupine,	35 33	*	434	5
Orange, Orang-Outang,	15	8	3	4 § 9	Porpoise,	17		2	5
Orchids,	20		51	121	Portland, Porto Rico,	39		13	5 \$ 1 \$
Oude, Owl,	9	1	9	321 98	Portugal & Literature		31	171	218
Oxford University,	20	12/8	12	3 <u>1</u>	Potash, Potassium,		1 1 1 3	9	27
Oyster, Oyster-Plant,	29 5		3 4 1 4	54 11表	Potato,		2	117	28
Pæony,	15	31	3½ 22½	103	Presbyterianism, Preservation of Food,	23	23	20	24
Painting, Palm,		1	171	9	Pride of India,	13		14	£ 84
Panama,	17 10		5	137	Primrose, Princeton,	21 15	-	4	12章
Pantheon, Panther,	2		2/8	151	Prison Discipline,		21	22	27
Papal States,		1	6 1 14	21	Protoplasm, Pruning,	16 18		64	20
Paraguay, Paralysis,	25	4	13	11/2	Ptolemy,	-11	1	8	35
Paris,		5 1 2	34	28 17	Pugilism, Punjaub, B. India,	14 28		81	28½ 15½
Parrot, Parsley,	6	8	2	15%	Pyrenees,	20	0.2	21	51
Parched, Partridge,	17		5½ 2½	12 1 20	Pyrometer, Quail,	30	28	188	4
Passenger,	12		1	31	Quebec,	5	43	21	39
Passionflower, Patagonia,	17	7 8	43	12½ 3§	Queensland, Quince,	10		27	123
Paul. St.,	39		20	58	Rabbit, Radish,	20		2월	5 2 14
Pauperism, Pawn,	33	41/2	31	1 1 3 4	Rail (bird),	17		3	77
Payment,	35 13		3 4 7	3 1 17 2	Raspberry, Rat,	39		3 4	9 ² / ₈
Pea, Peach,	17		73	204	Rattlesnake,	28		41	63
Peanut, Pear,	16 40		2 41	54	Raven, Red Sea,	13	1 2	37	81 21
Peasants' War,		1	328	13	Reed Instruments,	25	2	16 16 16 16 16 16 16 16 16 16 16 16 16 1	64
Peking,	5	1	91	48	Reformed Church, Reynolds, Sir Joshua,	24	-	21	3 § 6
Pelican,	26		43	73	Rhine,	39		2 1 2 2	2 35
Penn, William, Pension,	26	1	6± 4±	24	Rhinoceros, Rhubarb,		8	5	35 27 28
Fepper,	10	~	2	9 5 1	Ring. Rio Janeiro,	17	7	53	12½ 25
Pepsin, Perch,	8		12	(1	Road,	10	1	4	11
Periodical Literature. Persia,	56	3	15 2 19	13½ 3¾	Rocky Mount. Locust.	12	2/8	21	8 1 5
Peru,		21	22	48	Rope,		2	84	13
Peter, St., Petrel,	39	1	3	361	Rose, Rowing,		21	78	14
Petunia,	7		11/2	93	Rush,	14		12 12	15½
Pheasant,	17		1 1 2 4 2	18	Sage, Sago,	17		1 8 1 8 1 8	4
Philippine Islands.		Q 2 3 8	38	3 8	St. Petersburg, Salmon,		1 7	5 5 2	1 7 2 2
Philosophy, Philox,	6	0	2	15%	Sassafias,	13	8	2	2 4 6 4 3 7
Phœnicia,	30	1	978	58 28	Scotland, Sealfish,		2 7	17	7
Phosphorescence, Pigeon,	49		7	68	Servia, and language,		878	77	74
Pike, Pins,	39 26		3	27 48	Shakers, Shark,		1 2 8 4	54	4± 5±
Pine,		21	11	118	Sheep,	-	14	8 71	5 1 2 5 5 1 4 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Pineapple, Pink,	12		3	15% 11½	Shoe. Siberia,		1 1 1	9	27
		,							

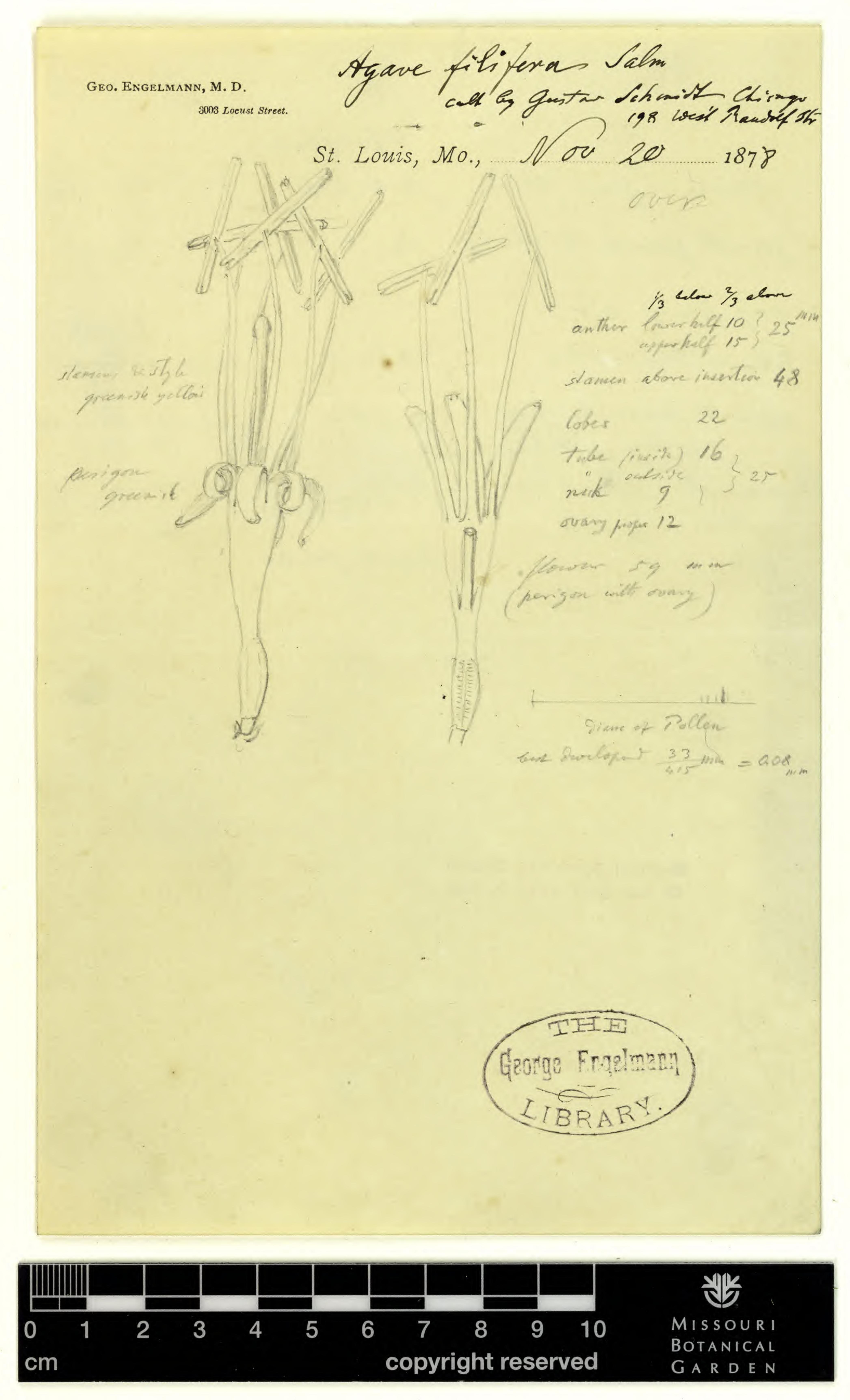






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as long as take

filament 1/2 with long 9-10 6:00 nearly as long as whole the Z inches 1/2 - 2 longer The filants MISSOURI BOTANICAL GARDEN GE RGE ENGELMANN PAPERS

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periority of the system of water pipes for heating in consequence. plant houses—the easy means it affords of distributing heat evenly and at a low temperature through a large amount of piping; and in this BY DR. WM. F. CHANNING, PROVIDENCE, R. I. low temperature of the radiating surface, lies the secret of the relative quality of water, steam and fire heat. If it were possible to heat the same amount of radiating surface, at the same low the nozzle of which is screwed an "atomizing" the evil effects would be precisely the same.

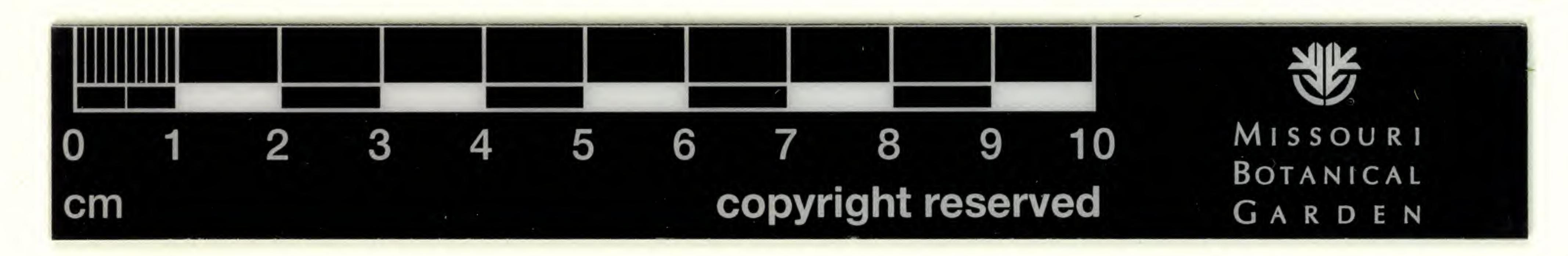
Reference is made to the great quantity of water to be heated in a water apparatus as compared with steam—but the heating of the larger quantity does not involve a loss of fuel, because all athracite coal may be safely left, without at- the latter. tention from hours during severe

This is one of the chief reasons of the su- sufficient for moderate weather only, and suffers

SPRAYING PLANTS.

An instrument comes to us from France this year for spraying plants on the large scale. It consists of a common pair of bellows, to temperature, with fire heat, the purity of the apparatus, similar in principle to the little atmosphere, would be retained in an equal de- atomizers, commonly sold by druggists for vagree as with water; on the other hand if water porizing perfumery, and figured also in the was circulated under the same pressure as steam, catalogues of some florists for spraying plants. This apparatus in the French instrument consists of a spherical metallic receptacle for water or other fluids, and two tubes meeting each other at nearly right angles, one of them being screwed into the bellows and conveying the air blast, and the heat received by the water is transmitted to the other dipping into the water receptacle. the atmosphere of the house, through the pipes | This receptacle, however, is not rigidly attached, as the water cools; and the heat contained or but hung to the air-tube so as to swing freely stored in the large volume of water, maintains a and allow considerable motion of the bellows, greater permanency in the temperature of the without spilling the water. The water tube is house with less frequent firing. When the ap- made of rubber where it dips into the receptacle paratus is of proportion and power, a fire of to accommodate itself to the swinging motions of

The instrument is well made and will vaporize



One advantage which American house gar- steam, it would of course flow into a greater to be put into pots again, but this is no great of fuel. If cut down to old bare stems, once in a while, they will not break again.

COMMUNICATIONS.

HOT WATER AND STEAM. BY CHAS. F. HITCHINGS, NEW YORK CITY.

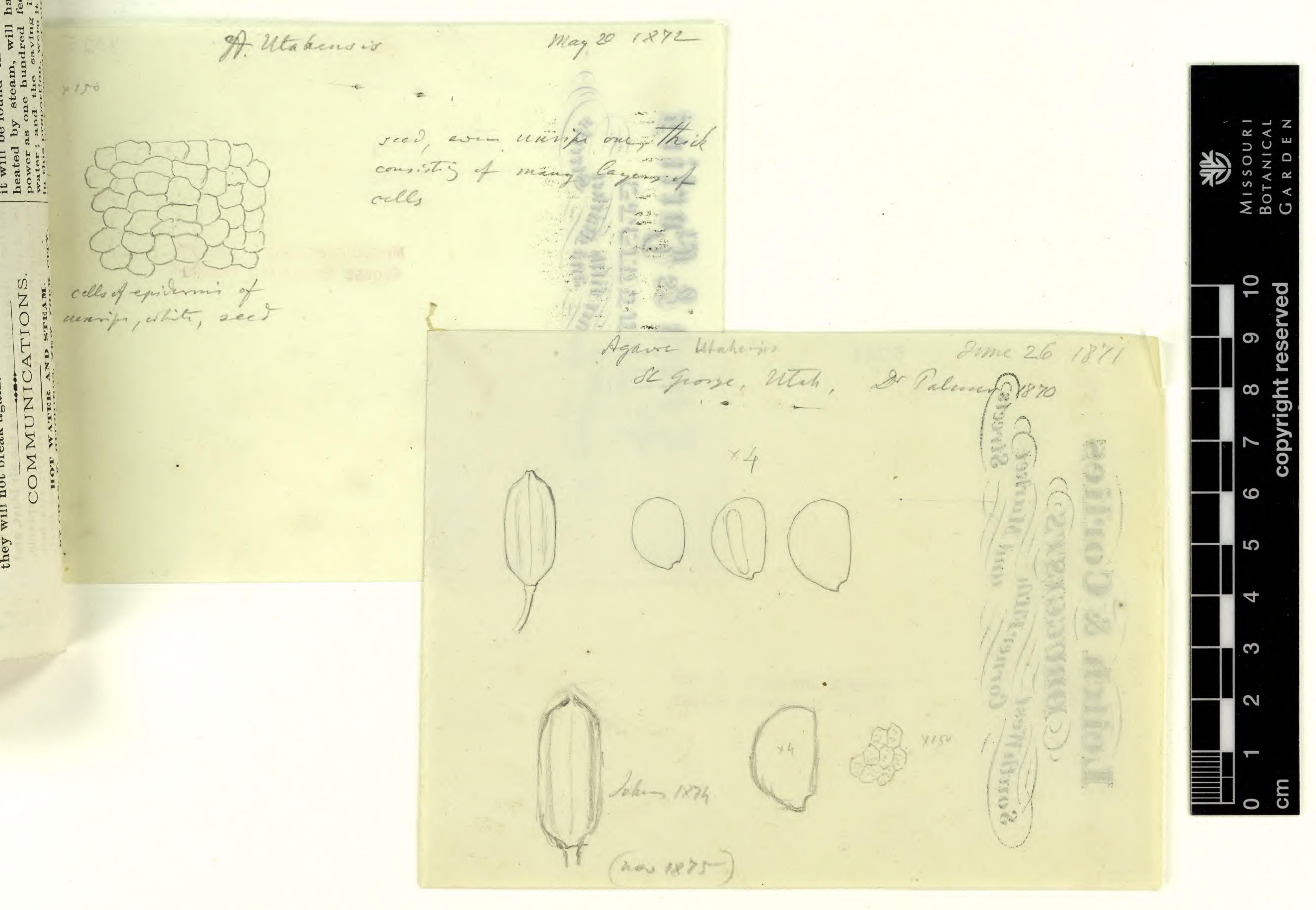
deners have over our English friends is that they | length of pipe, but increased pressure diminishes can plant so many of their pot plants out in the | the volume and requires more fuel. Again the open air in summer. Indeed not only window steam boiler that is capable of furnishing ten plants but large numbers of greenhouse plants times more heat than the hot water boiler, must can be treated in the same way; of course some be something more than ten times its size and care has to be taken in the fall, when they have will consume more than ten times the quantity

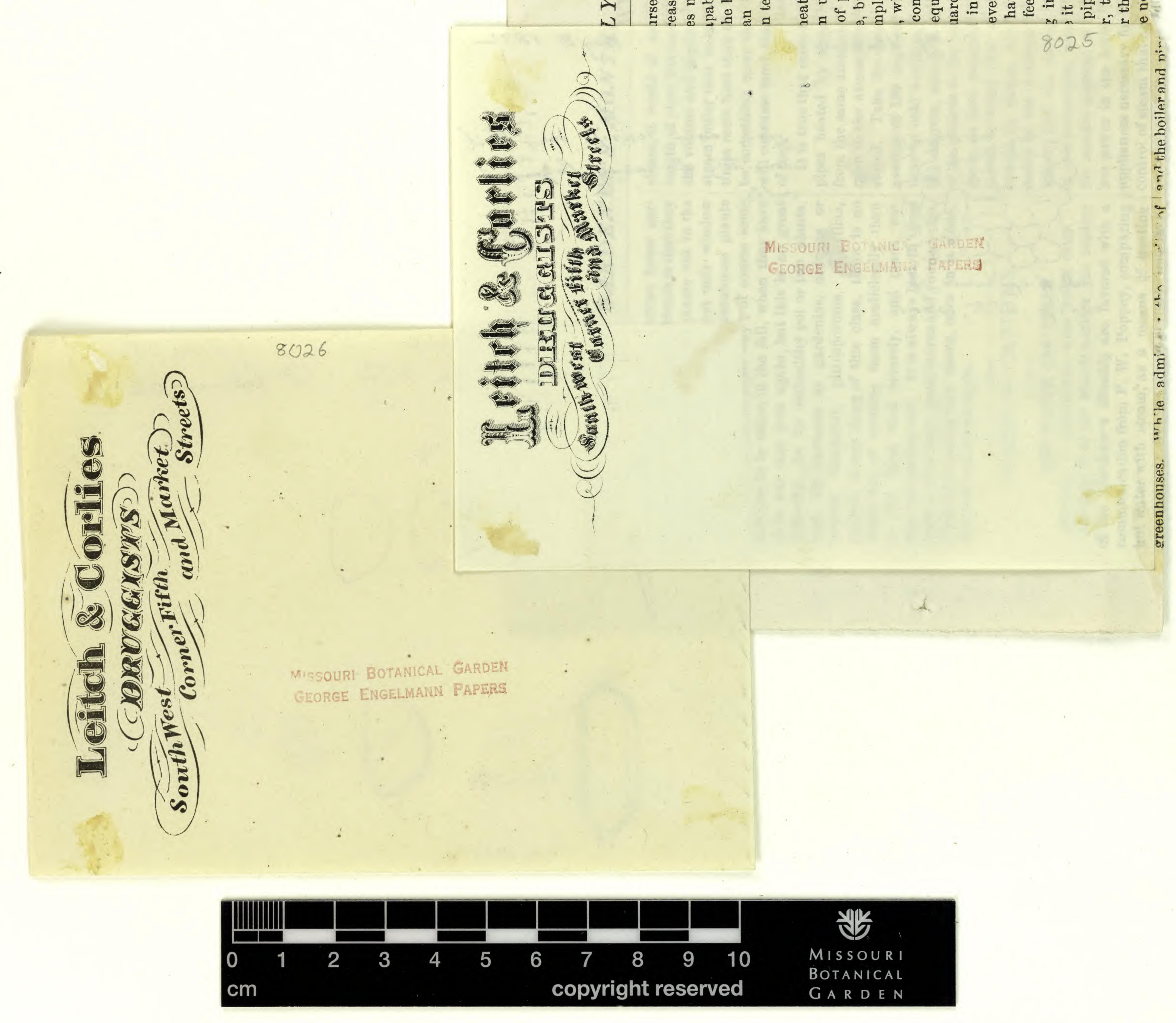
difficulty. As for unhealthy pot or tub plants, It is true that more heat can be obtained from such for instance as gardenias, oranges or pipes heated by steam under pressure, than lemons, oleanders, pittosporums, camellias, from the same amount of pipe heated by water azaleas, or any thing of this class, there is no open to the atmosphere, but not ten times, as better way of treating them medicinally than stated. Take for example, water pipes at an to cut them back severely, and plant out average of 190 degrees, which is a fair working into rich garden soil. It is always best in these heat for cold weather, compared with steam at cases to leave some green leaves and young twigs. 241 degrees, which is equivalent to a pressure of ten pounds to the square inch, and say 45 degrees as heat required in the greenhouse, and it will be found that seventy-four feet of pipe heated by steam, will have the same heating power as one hundred feet of pipe heated by water; and the saving in first cost would be in this proportion, were it not for the facts, that

> pipe does not admit of r, that there are many r the safe use and proper eded with water

> > hught iron.

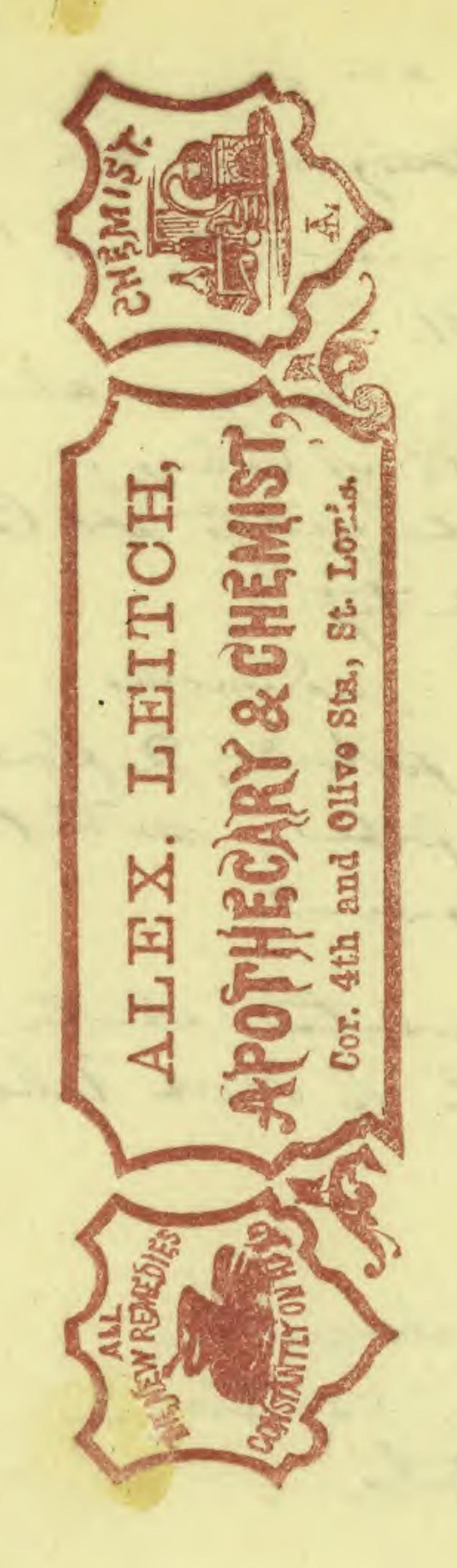




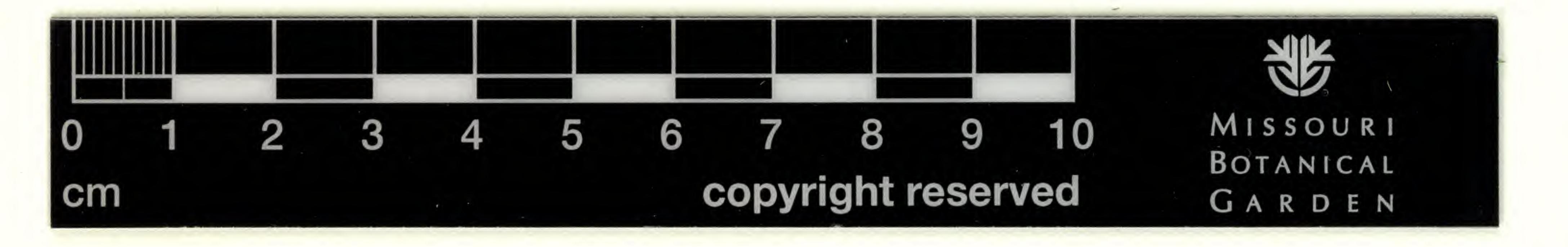


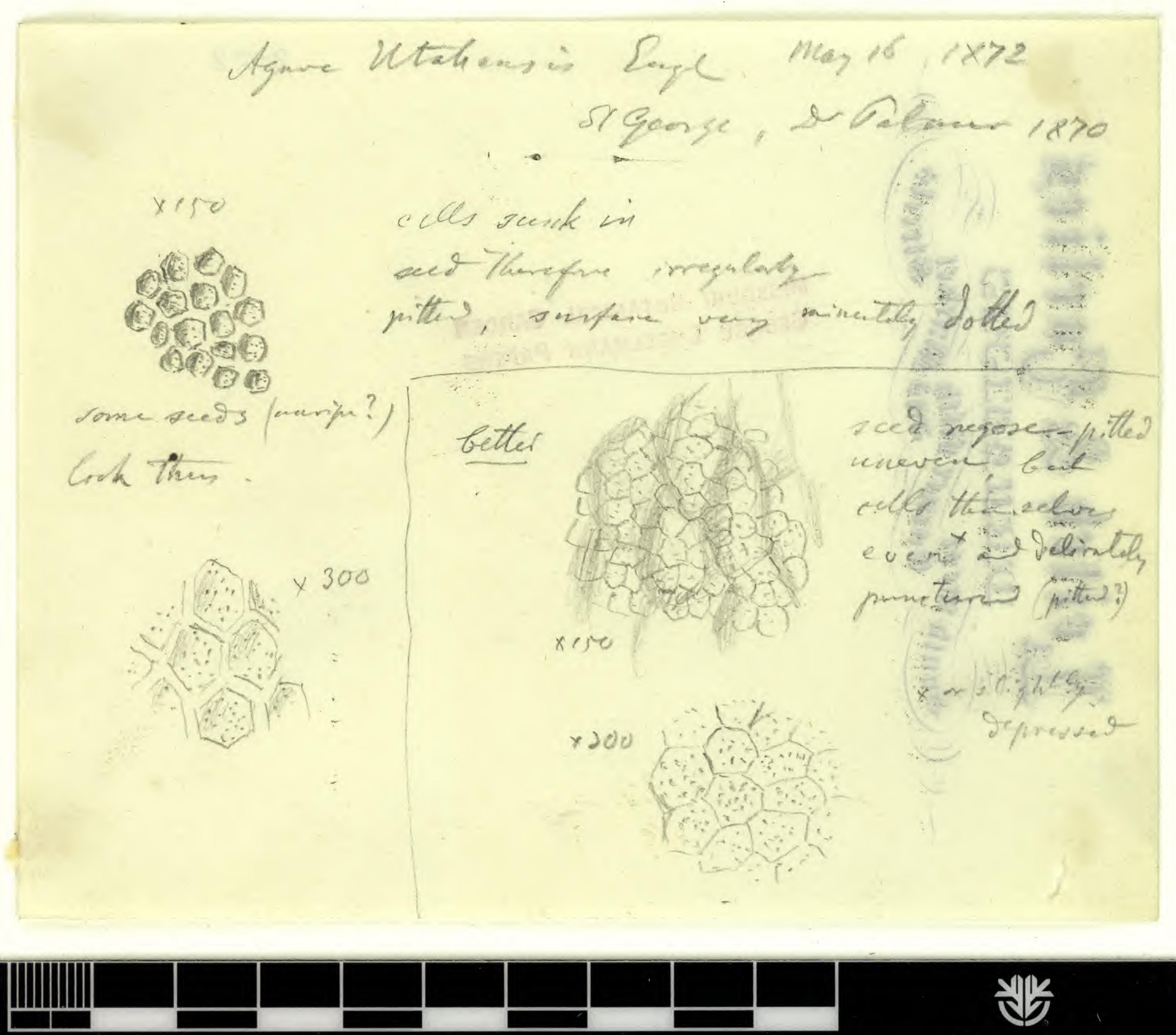




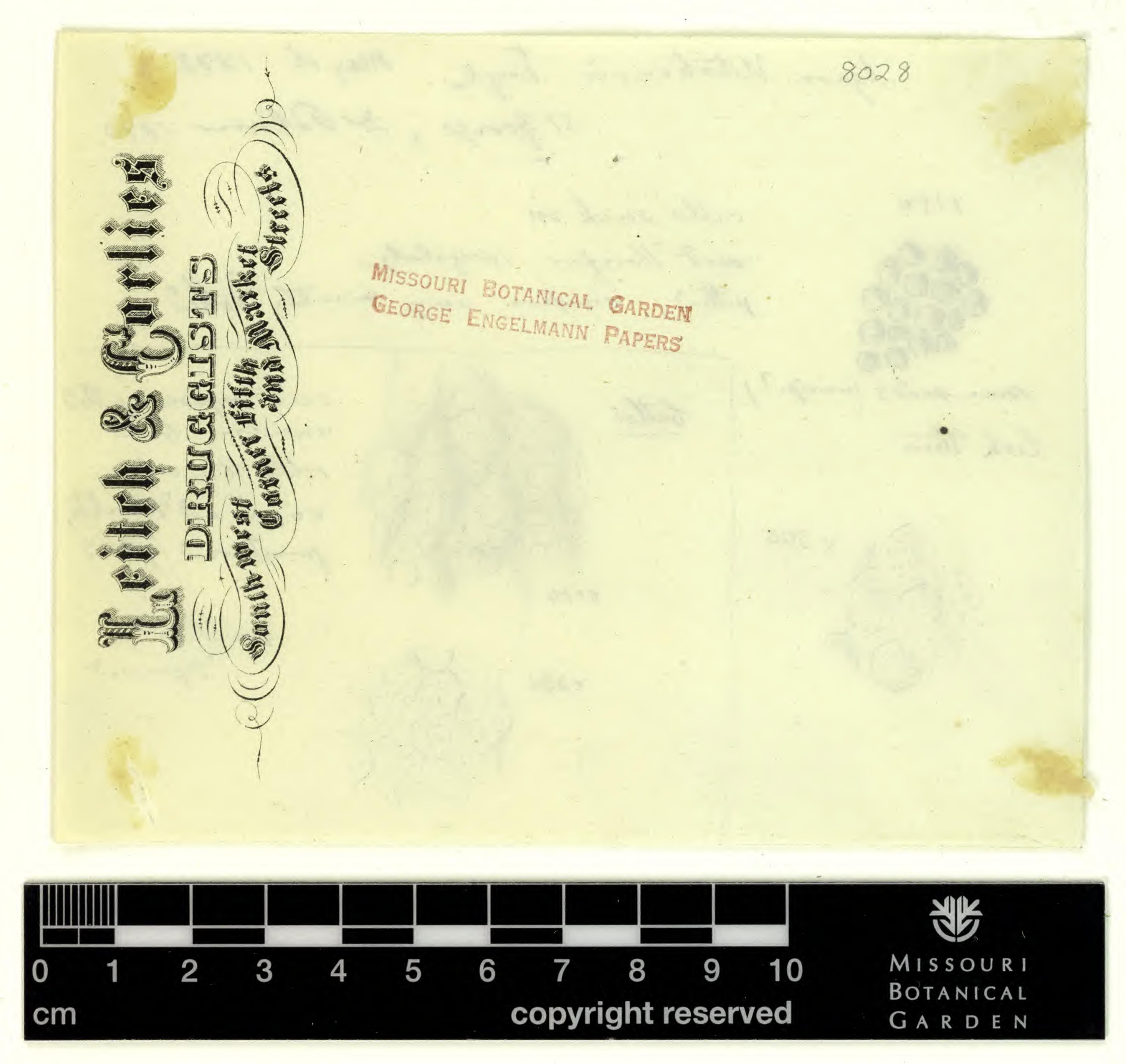


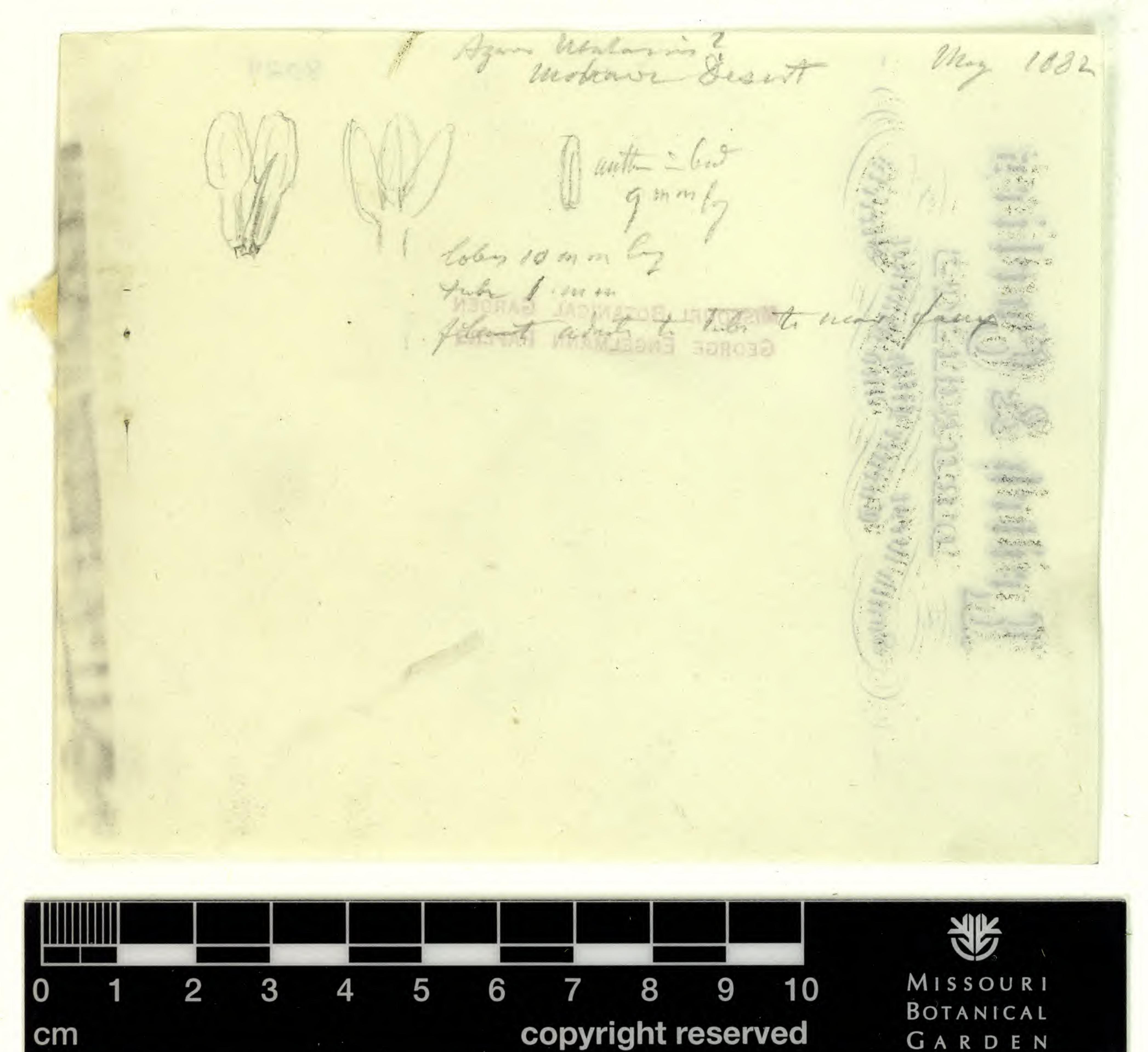
MISSOURI EOTANICAL GARDEN GEORGE ENGELMANN PAPERS

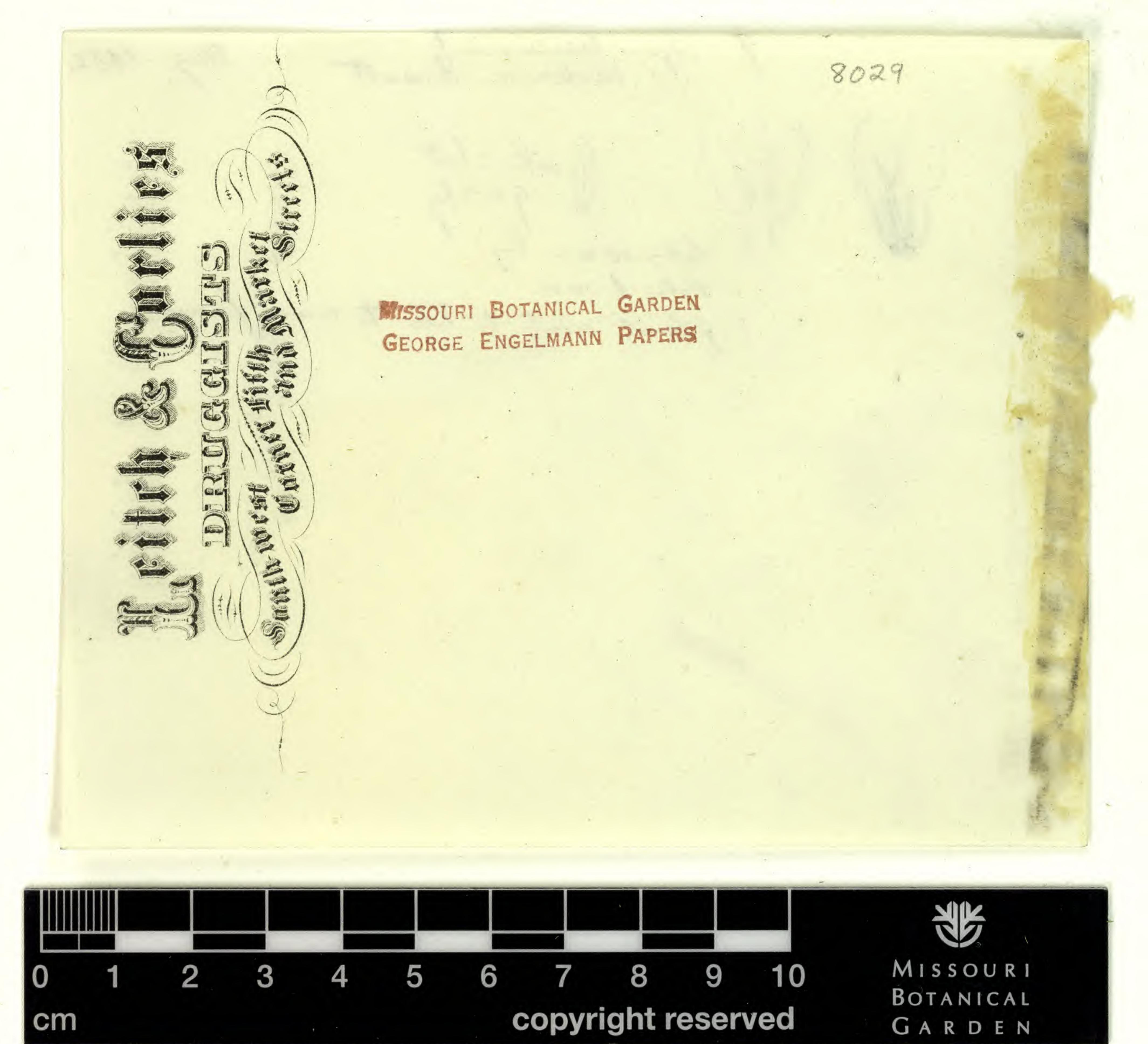










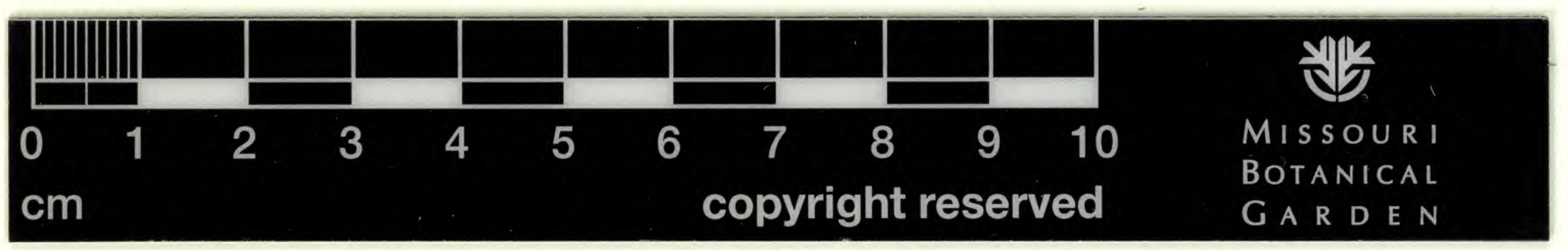


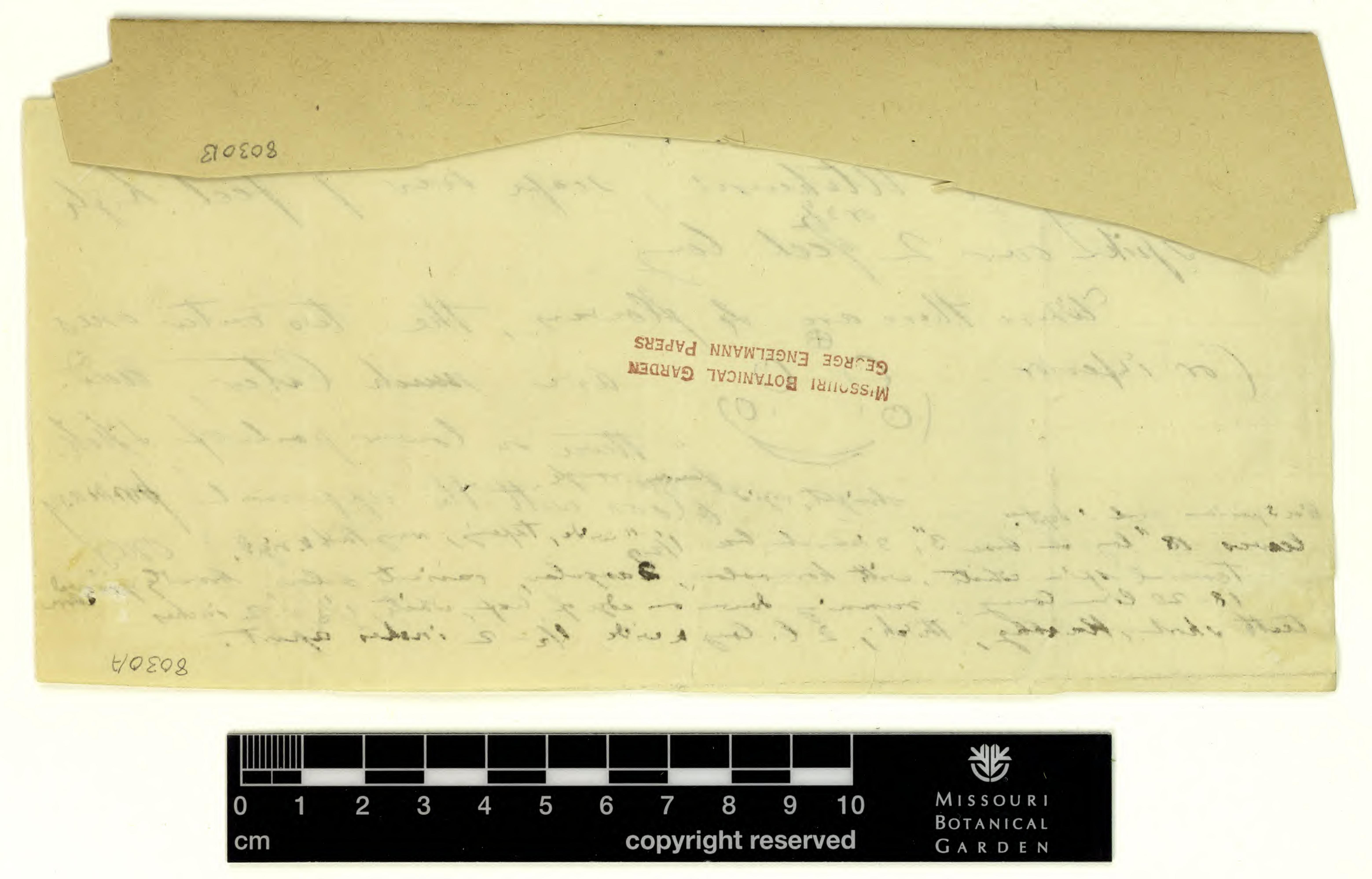
Sout by & Palmer for South of It george Dell's To Agave Utahuns scape over I feel high spike own 2 feel boy Where there are & flowers, the two outer ones Cor inferior: O O are much later and

(O' O) those on lower poul of Spill

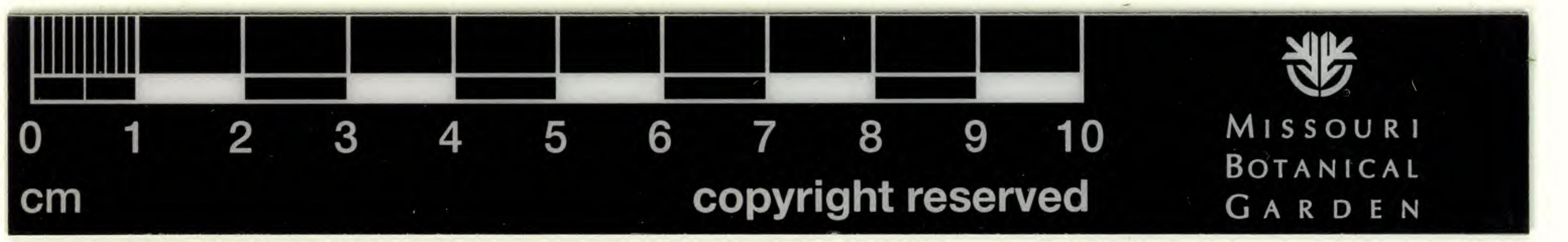
and sperior and i dept. Spill, right floor with the apparent primary

leaves 18" log at less 3", 3 indeed be 1'2" with, taper; my that & right. Only termine spin white, with homerolon, Dangular carriete below brown grown 18-20 line long, running how on edge of last white 1/2 - 2 inches that that, Knother, thich, I l. long & wite, 1/2-2 insher apart.





Spare Thing lever aver a fort long, deser This le flewer Telm 1870 2 feet star fearen spike. Zi of srape nokus Il George Mitch





Caldwell, Rutherford, Wilkes, Hertford, Burke, and Orange. fatality, involving three-fourths of the entire stock of Newberry, South Carolina, is reported, and small losses are mentioned in Spartanburg

and Lexington, in the same State.

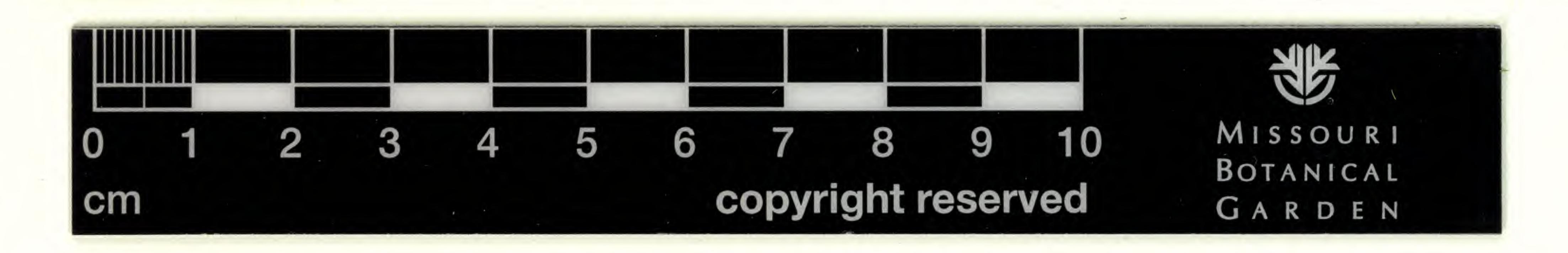
Georgia has suffered little loss; 50 per cent. is reported in Clinch, 30 in Morgan, and small losses in Bartow, McDuffie, Lumpkin, Jackson, Harris, Catoosa, Floyd, Butts, Forsyth, Towns, Pike, Walker, Clay, Milton, Clayton, Putnam, Newton, Pulaski, White, Franklin, and Heard.

Our correspondent in Dallas, Alabama, lost 44 out of 56 old hogs; pigs were not so generally attacked. In Hawrence a loss of 25 per cent. is returned, but the mortality was reported slight in Tallapoosa, Marshall,

De Kalb, Calhoun, Clarke, Jefferson, Etowah.

Very little disease among swine is reported in Mississippi; a few cases have occurred in the following counties: Attala, Kemper, Neshoba, Pike, Amite, Tippah, Yalabusha, Yazoo, Lafayette, Winston, and Carroll. In Gonzales, Texas, a disease, assumed to be "an affection of the lungs," carried off most of the pigs and a few hogs. The fattest were first to fall; of a litter of pigs, fat and apparently healthy at night, half would sometimes be found dead in the morning. In Upshur, a loss of one-tenth of the pigs is credited to carelessness in permitting them to eat ad libitum freshly ground cotton-seed. A few losses appear in Austin, Collins, Harris, and DeWitt.

There is scarcely a live pig in Benton County, Arkansas; the result of a cough and wasting away. A loss of 20 per cent. is returned from Newton County. Large losses occurred in Clarke, attributed to "too much cotton, and want of corn." One third of the stock in Jackson County died, generally in full flesh. Losses are also reported in John-



of milk or slop; mix well by stirring; pour into a trough sufficiently long for all the hogs to get to readily; then let them go to it all at once. It will be better where there is a large lot of hogs to bring them to the trough in detachments of not more than twenty. This course, if persevered in for a week, when there are any indications of the disease, it is believed, will arrest it.

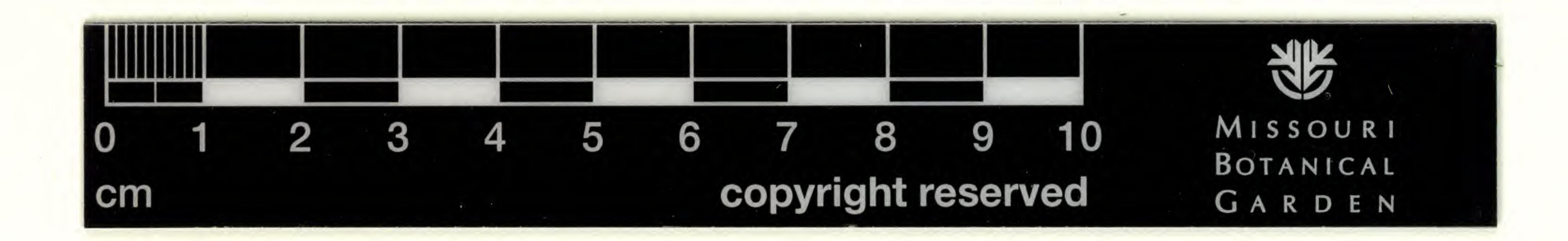
The curative treatment is very similar—carbolic acid in the same amount three times per day, adding to each dose a tablespoonful of sulphite of soda; if the hog is too sick to eat, catch it, turn it on its back, and pour the medicine into its mouth; in this case a half pint of milk is a good vehicle in which to administer the medicine.

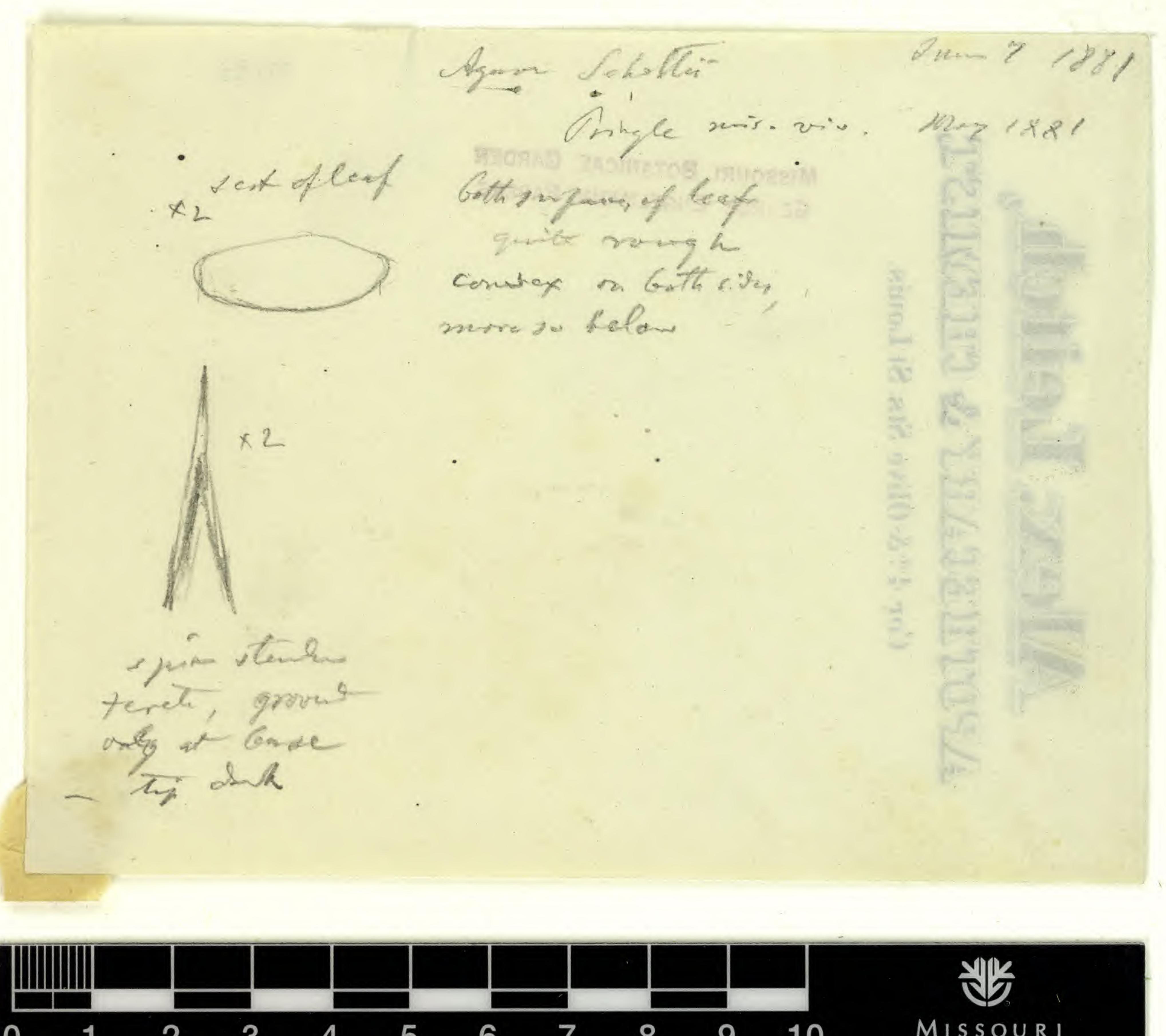
The Spencer Reporter makes the following statement:

Hog cholera has prevailed, and still prevails. Its presence is confined to no particular district or locality, but is spreading in its visitations. When it becomes present on a farm it generally takes off all the young pigs, and from one-fourth to three-fourths of the rest of the swine, leaving the surviving in an unthrifty state. Within the last fifteen years two-thirds of the farms have been visited with it, and some farms more than once. The effect has been to discourage the raising and feeding of hogs, which was a specialty.

In Anderson, Kentucky, the loss is estimated at 500 head; in Hardin, 33 per cent., and the disease still spreading; in Bourbon, \$5,000; in Whiteley, 50 per cent.; very heavy in Clarke, while in Christian the loss is placed at 25 per cent., 20 per cent. in Kenton and Laurel, about the same in Graves, and less in Shelby, Hopkins, Scott, and Warren.

In Clarke, Missouri, the loss is estimated at 50 per cent., "confined principally to pigs up to six months old;" "many deaths from insufficient shelter, but all attributed to cholera," is written from Bates; loss 1,000 head in Holt, 375 in Bates, 200 in Pettis, and small percentages of loss in Benton. Cass, Dent, Butler, De Kalb, Montgomery, Marion,



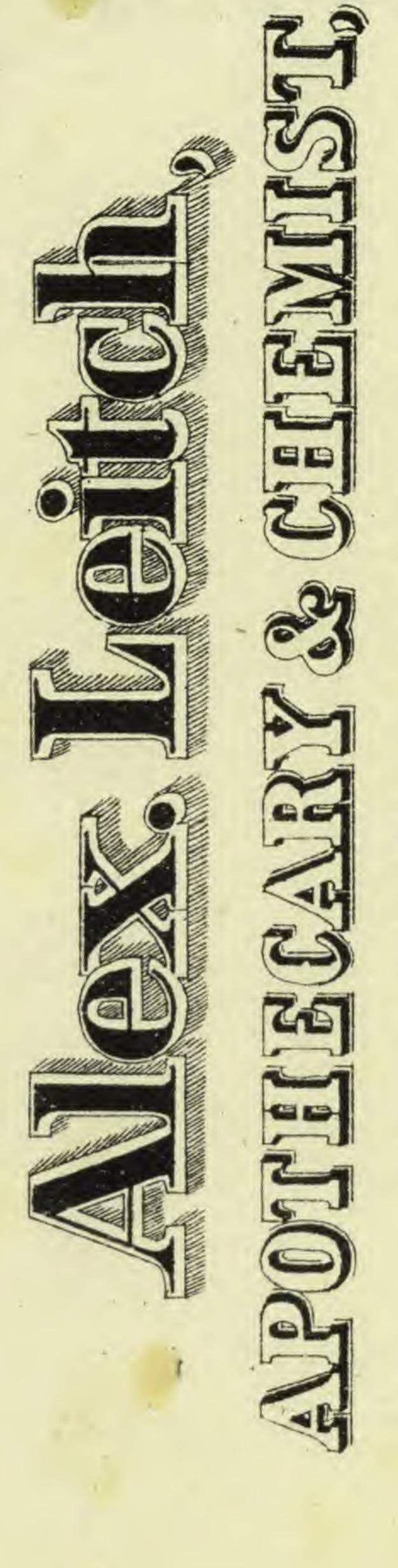


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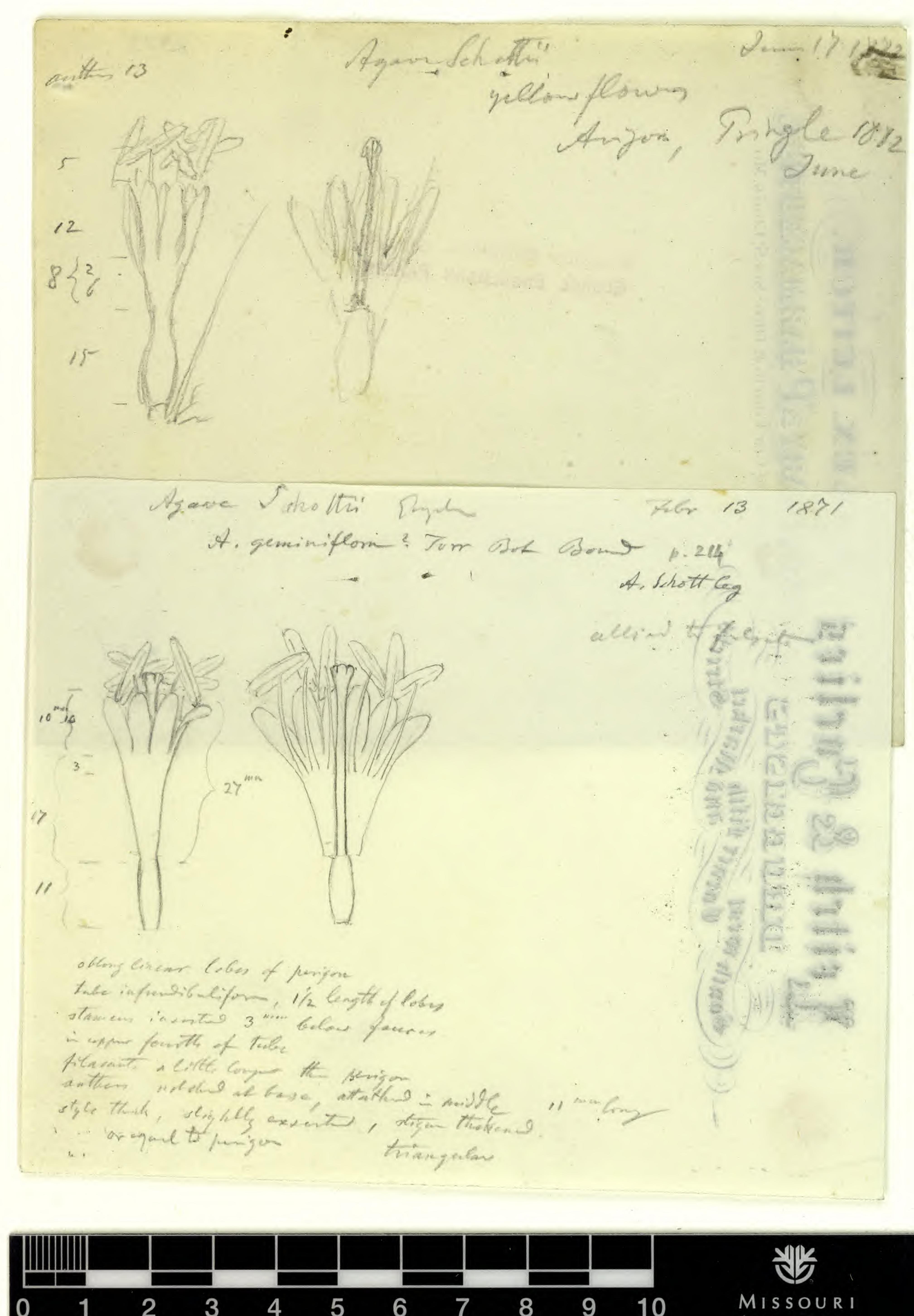
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MISSOURI BOTANICAL GARDEN GEORGE ENGELMANN PAPERS

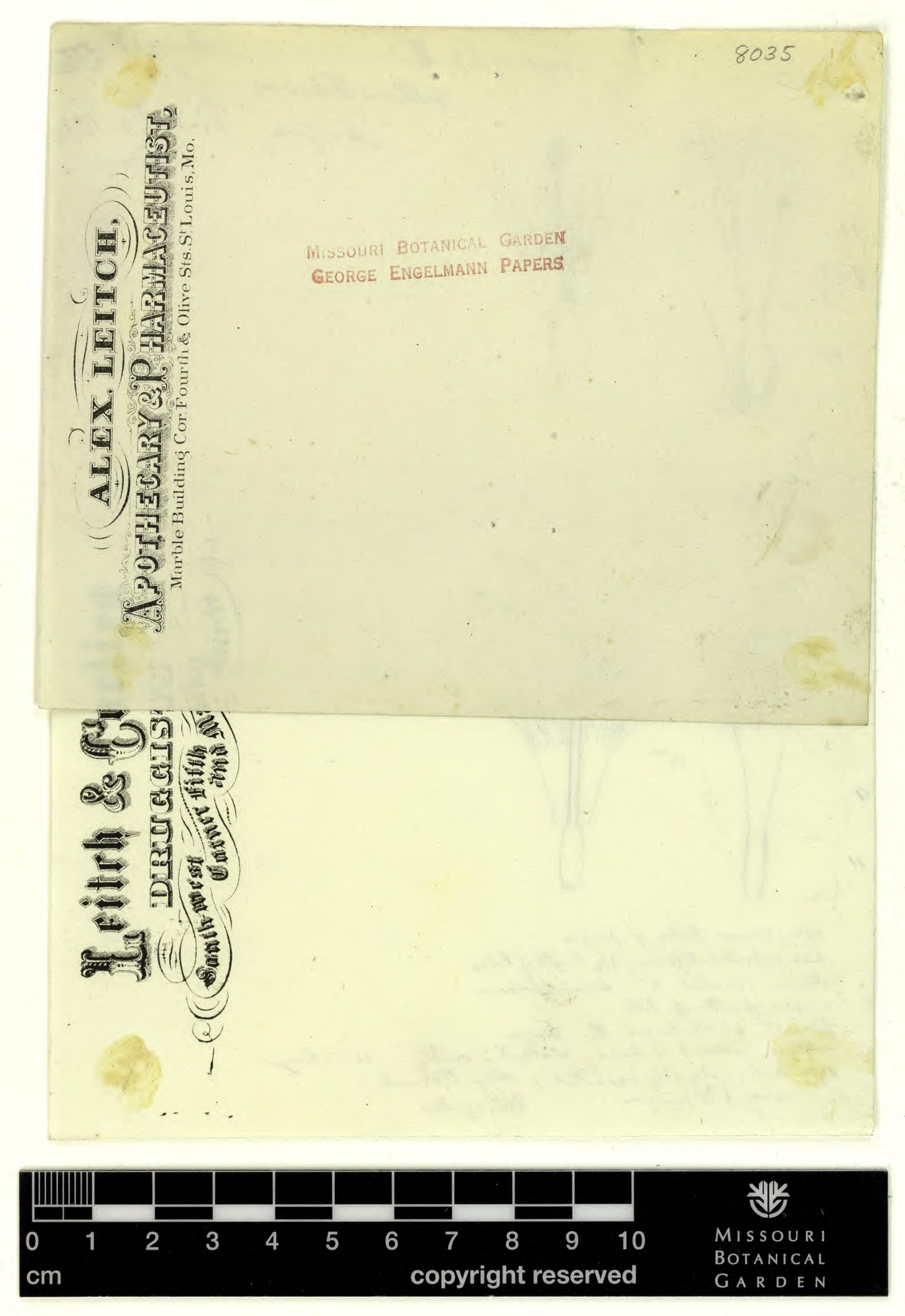


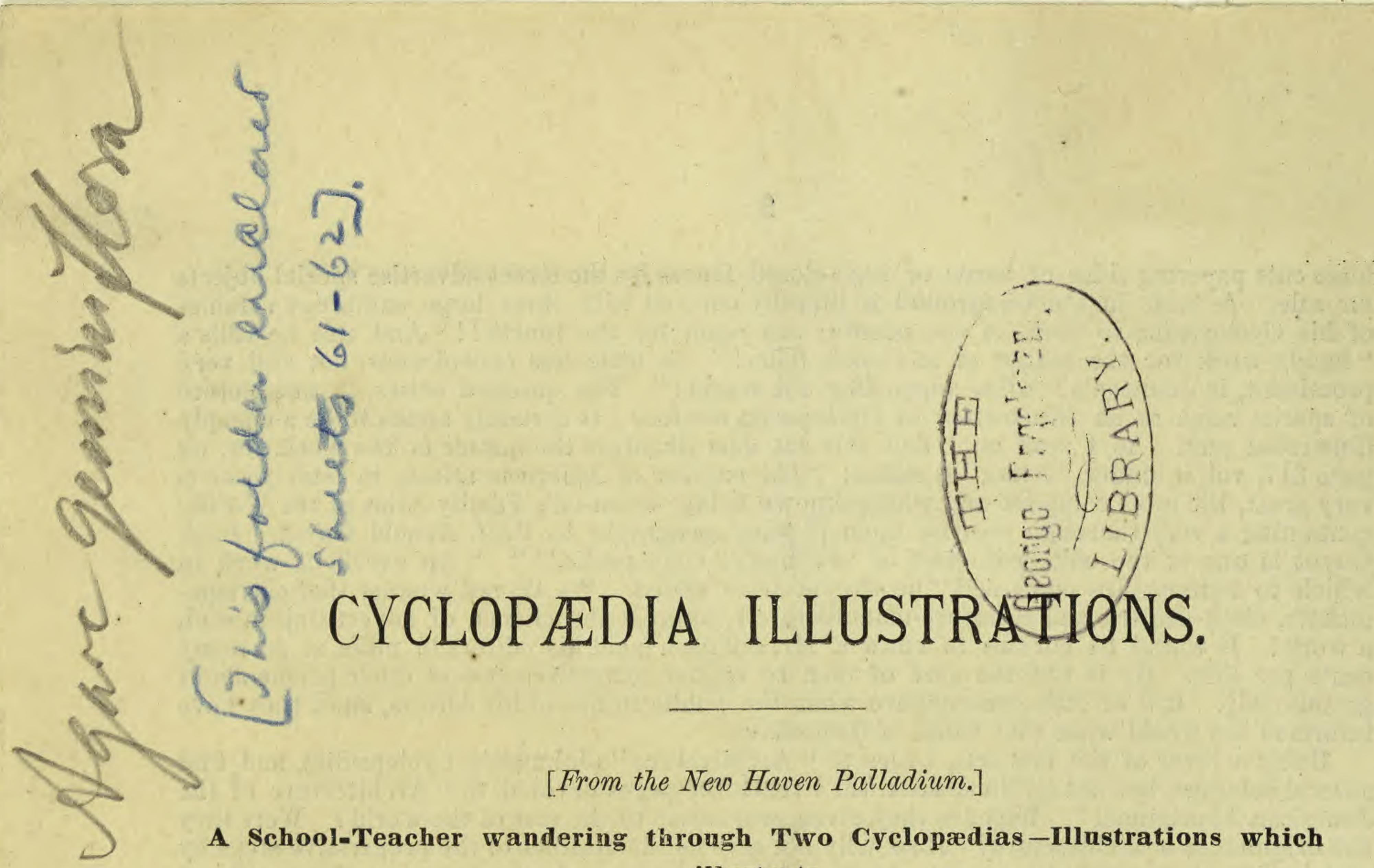






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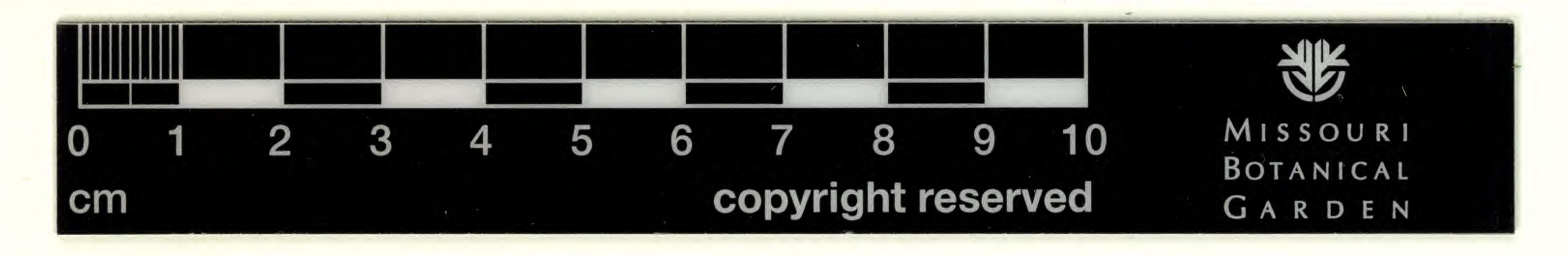




illustrate.

To the Editor of the Palladium:

In looking over "Johnson's Cyclopædia" I was struck at the small number of illustrations, and, by chance, turned to the last page of the last volume, where the closing paragraph reads: "Thus it turns out in the end that 'APPLETONS' CYCLOPÆDIA' has lost largely in type-matter, and Johnson's gained as largely, by the former containing so many old views of cities, public buildings, etc., while the latter has utilized space to the best advantage in illustrating only where it seemed necessary in order to convey a clearer idea of the subject treated. As Harper's Monthly Magazine said: 'Its illustrations illustrate; they are not mere pictures brought in to justify the title-page; and it is characteristic of the work that the moral and religious topics are put into the hands of disciples, and not enemies." the transfer their amen turned to the article in John-



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a work! It would be curious to know if Mr. Johnson paid his editors in puffs at so many makers, clock-dealers, and furniture-manufacturers, jump at the chance of advertising in such which to immortalize one's self," he should have added. We do not wonder that carriage-Guyot is one of the editors-in-chief of 'Johnson's Cyclopædia!'" An excellent work in containing a very thorough treatise upon physical geography by Prof. Arnold Guyot. Prof. very great, the most complete and widely-known being 'Johnson's Family Atlas of the World,' page 317, vol. i., under "Atlas," it states: "The number of American atlases in later years is illustrated puff. As I read on I find this cut does illustrate the matter of the work, for, on of special value as an illustrution of Cyclopædia matter? It certainly seems to be a cheaply prominent, is Johnson's "Atlas supporting the world!" The question arises, Is this picture "handy-work for the corner of any one's table!" A little less conspicuous, but still very of his Oyclopædia, so there is not possibly any room for the fourth!! And this he calls a A table in the foreground is literally covered with three large cumbrous volumes huge cuts papering sides of barns or high-closed fences by the street advertise special objects

of to-day, warranted by the superior architectural importance of the wigwams of atmenter of Greek, Gothic, and Saracenic art, to say nothing of the works of various modwhich the art reached its present stage, as Appleton does? Is the exclusion of magnificent the originators of architecture? If so, why not give us illustrations of the progressive steps by American Aborigines!" Why are they given preference to the rest of the world? Were they several columns, but not an illustration till I reach the pages devoted to "Architecture of the Being a lover of the fine arts, I turn to "Architecture" (Johnson's Cyclopædia), and find

gratuitously. It is of little consequence what the public thinks of his editors, since they have

cents per line. He is not the sort of man to scatter advertisements of other people about

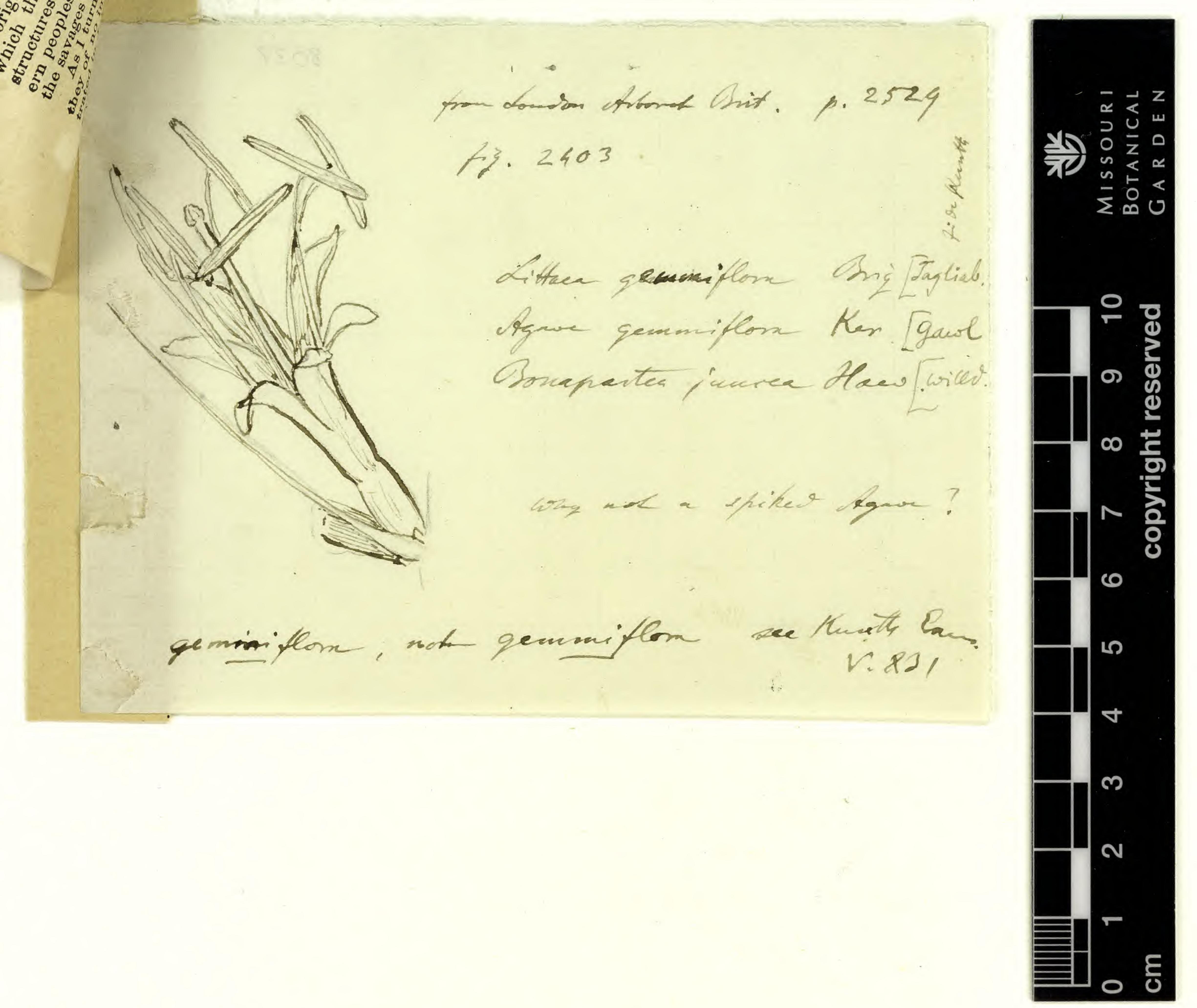
informed the world what they think of themselves.

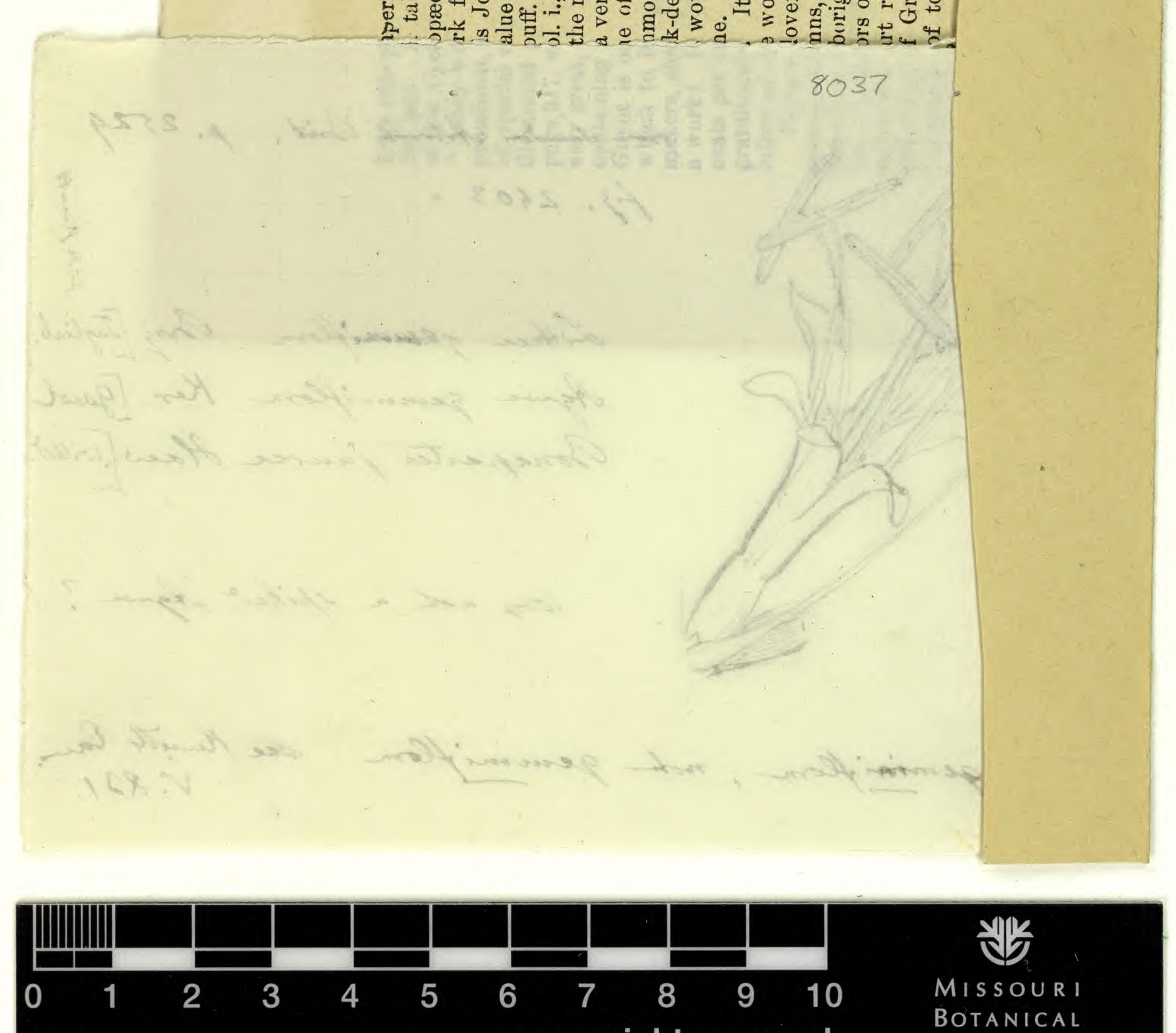
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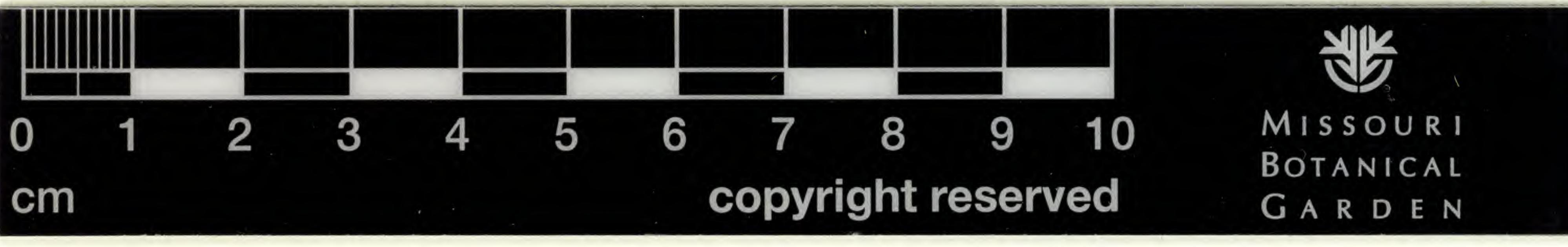
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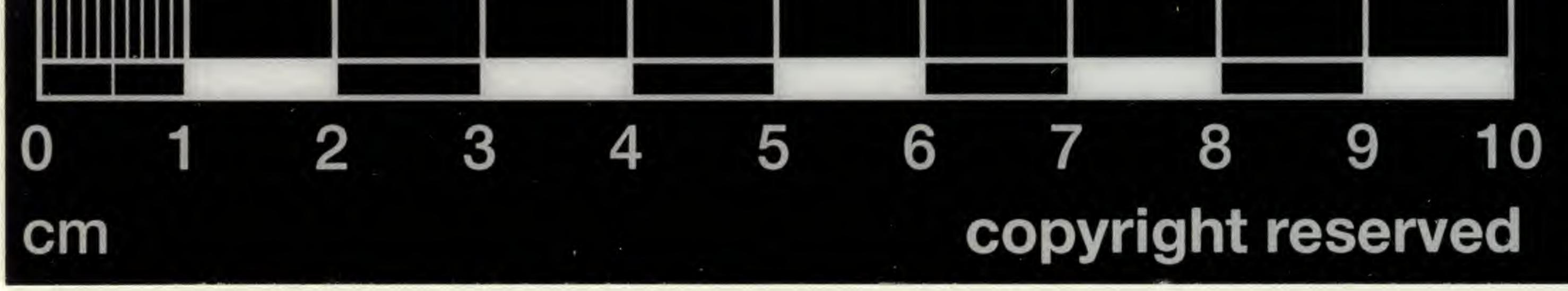
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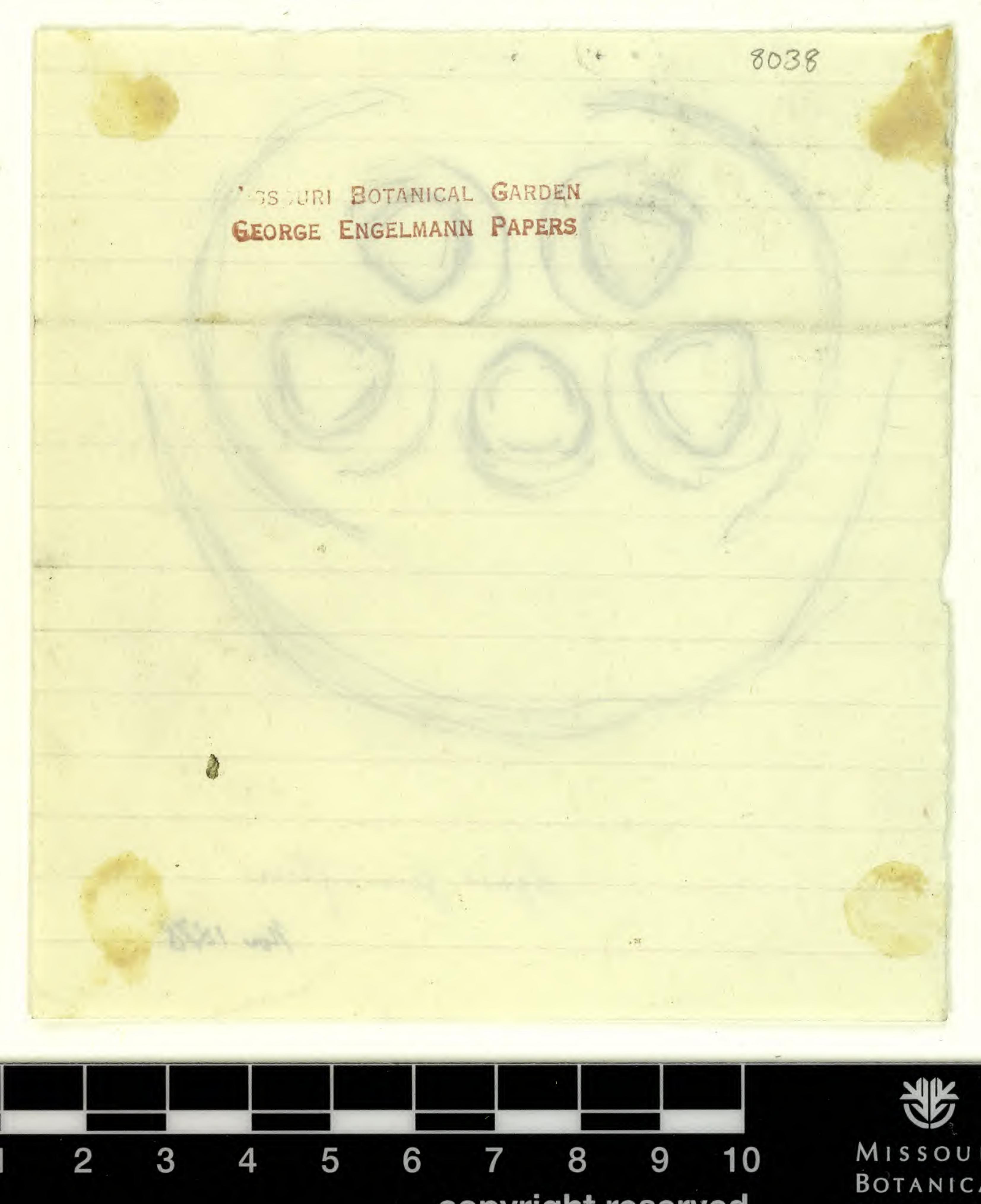


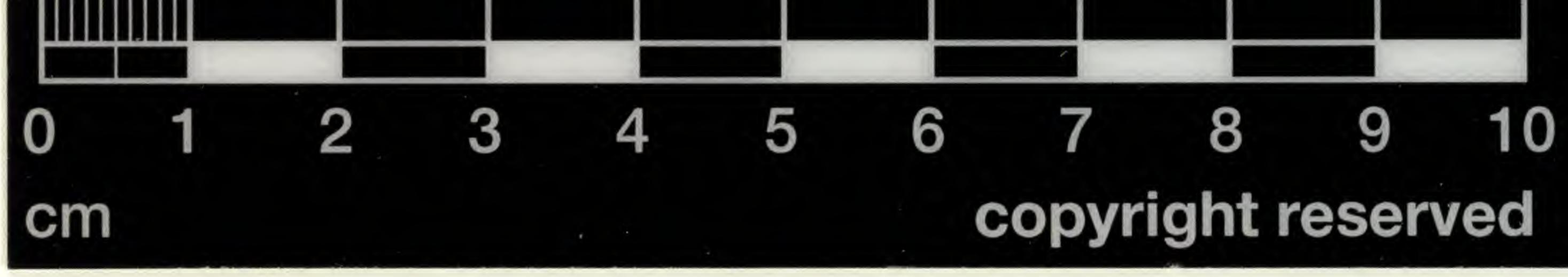






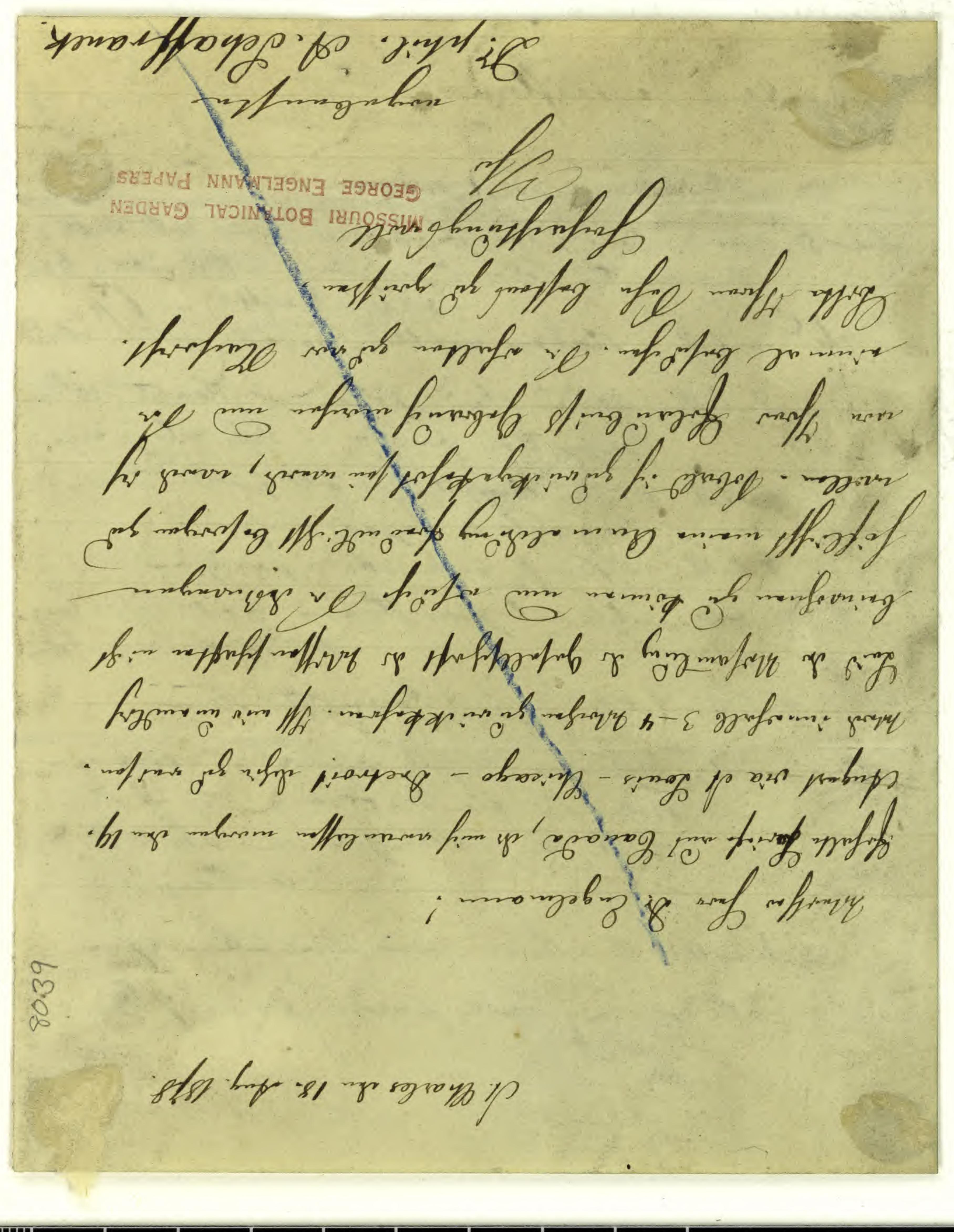


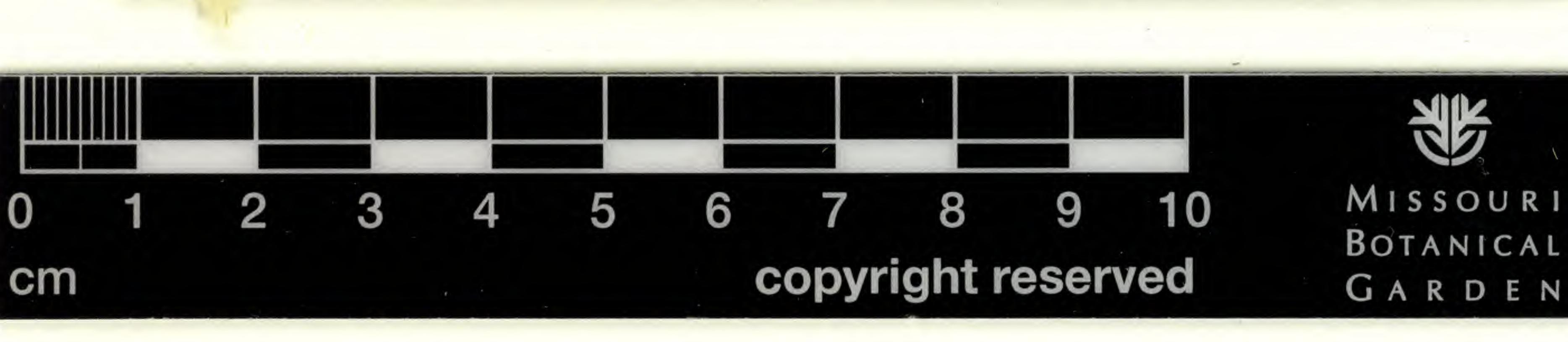


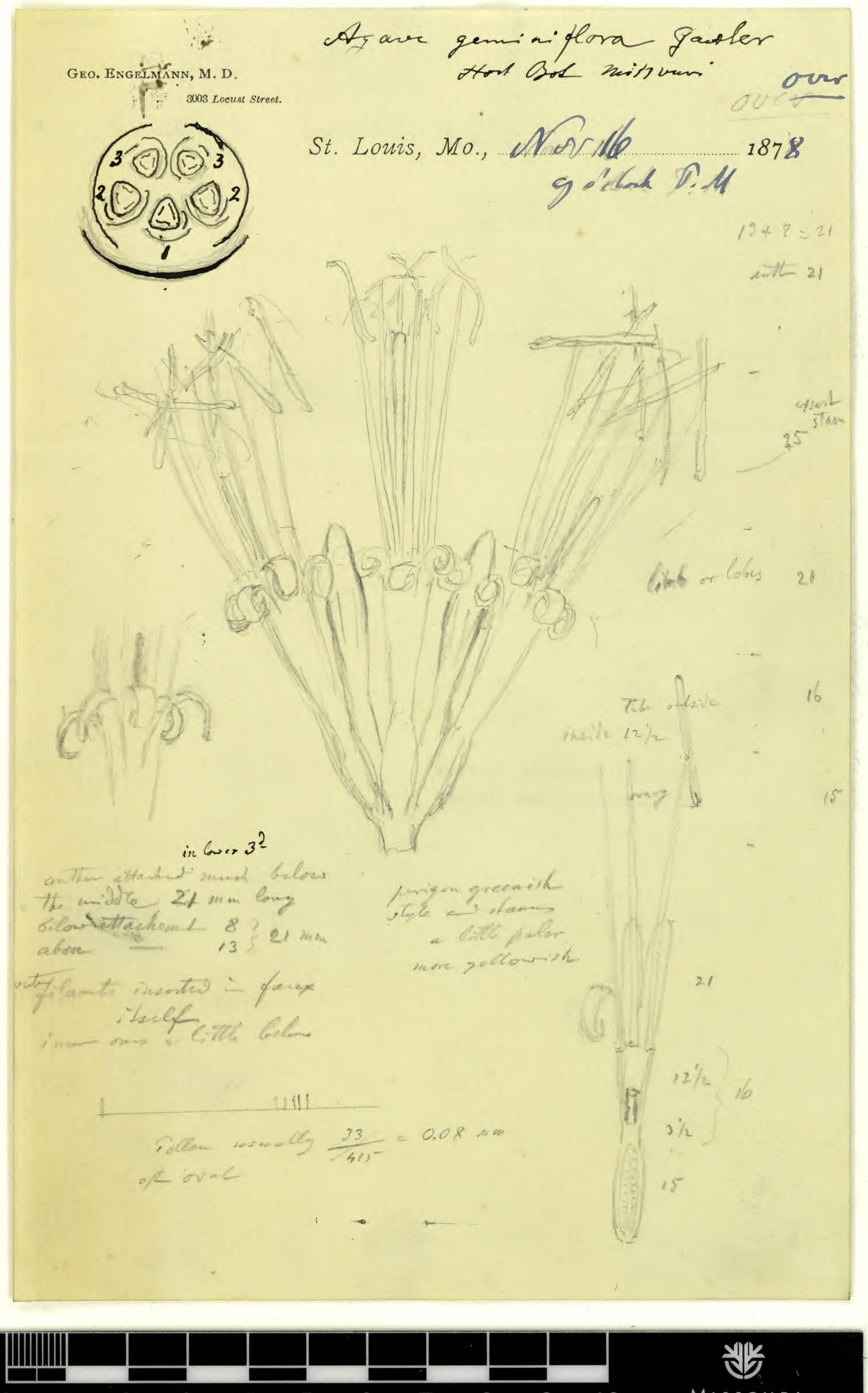


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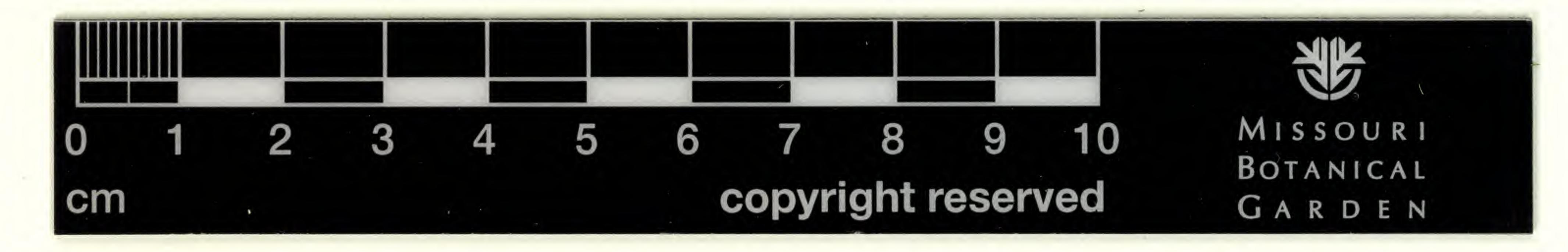
John Sold

308

MÉMOIRES ORIGINAUX.

animaux en captivité, qu'il donne cette explication, vraie en partie seulement.

Ce travail me tomba sous les yeux, il y a quelque temps; et comme à ce moment je possédais des Ampullaires vivant depuis longtemps déjà dans un bocal, l'inexactitude, ou pour mieux dire la fausse interprétation de certains faits, me surprit et me décida à reprendre ces obsérvations. C'est le résultat de cette étude que je présente aujourd'hui. Il lest probable que plusieurs des faits que je signale ont déjà été indiqués par Owen, par Gray, par Troschel et d'autres encore. Je n'ai pu, loin des centres scientifiques, m'en assurer; mais si cette note reproduit des faits peu nouveaux, je suis convaincu du moins que quelques uns de ceux que je présente ne seront pas dans le même cas. D'ailleurs, je n'ai pas la prétention d'annoncer le fait, devenu classique, que les Ampullaires ont une poche pulmonaire (MM. Gervais et van Beneden classent, d'après Troschel, ces animaux parmi les Gastéropodes pulmonés); je veux seulement décrire cette poche dans l'Ampullaire des Antilles, et indiquer son fonctionnement dans les diverses conditions où l'animal se trouve placé con je encie es



MÉMOIRES ORIGINAUX.

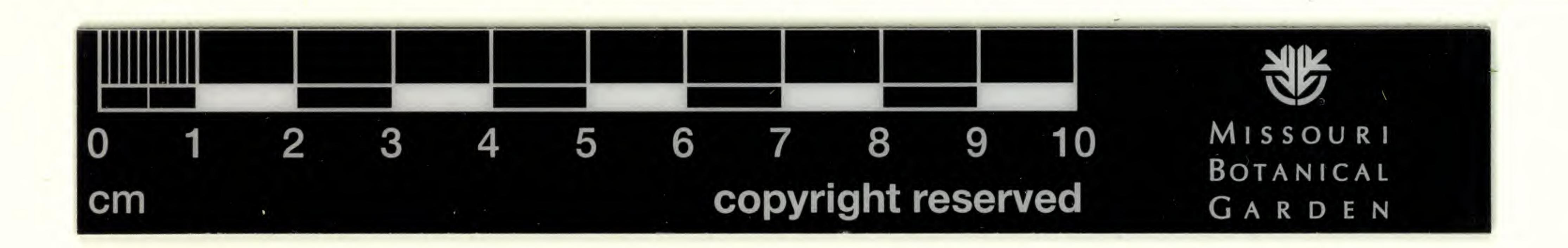
LA RESPIRATION DES AMPULLAIRES,

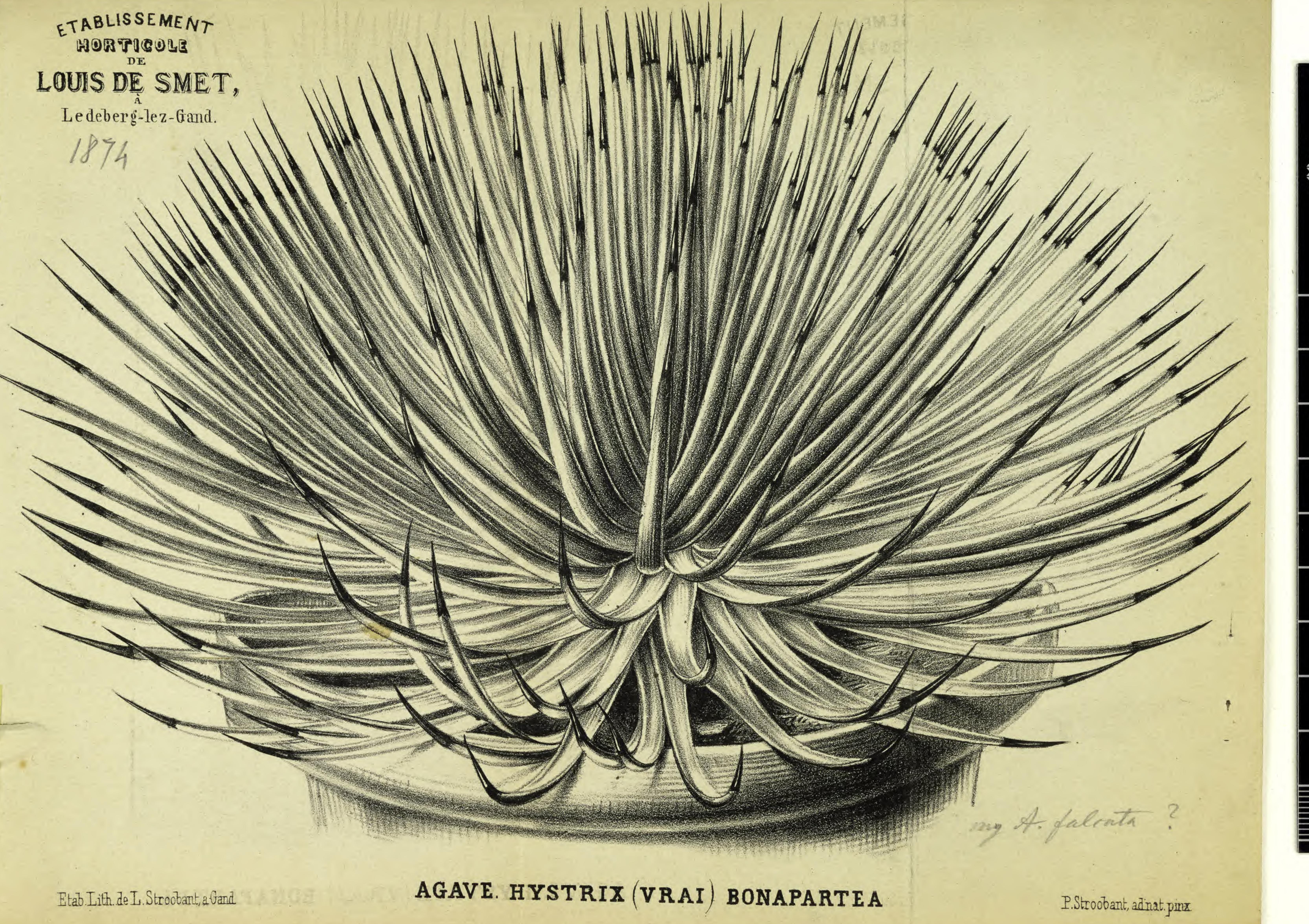
Par M. BAVAY, Pharmacien de 1re Classe de la Marine.

Il est fort peu d'animaux qui présentent à la fois la respiration aérienne et la respiration aquatique, ou qui du moins effectuent chacune d'elles par un organe différent.

On savait depuis longtemps que les Gastéropodes du genre Ampullaire avaient la faculté de séjourner des mois entiers hors de l'eau sans périr, et on avait supposé, avec assez de raison, que ces animaux pouvaient bien avoir un double système respiratoire.

On suppose avasi que les branchies pouvaient, dans l'air humide,





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